'82. A great year for PT7.
PT7
THE ADVANCED FEATURE TERMINAL FOR ICL AND IBM.
FERRANTI Computer Systems

ComputerWeekly

Thursday, January 28, 1982

OMNIX is new

DEC, Wang and Apple beat the recession

by Kevin Cahill

WITH the recession pounding away at the profits of most US computer majors, three leading manufacturers of medium and small systems have bucked the trend with sparkling results.

Digital Equipment Corp, Apple and Wang have all reported improved half-year and quarterly figures.

DEC showed the strongest performance, with turnover improving 27% in the second quarter, and profits up 42% at $99.1 million, compared with $69.9 million for the same quarter of 1980. Sales were $965.8 million for the quarter compared with $762.3 million in the December quarter of 1980.

DEC's half-yearly results showed a profit improvement of 49% at $187.9 million, and sales showed a 27% gain at $1.81 billion. The sales growth is even better than the 25% growth predicted by the company last year, though it is below DEC's historic 35% annual growth rate.

While predicting that this current quarter would be "an up quarter", DEC is cautious about the general prospects, saying that it continues to see a slowing in world economies and a moderation in the pace of business.

DEC's profits were substantially boosted by a huge interest payment to the company of $23 million, implying that the powerful profit rise owes more to good financial management than to the company's computer business. Interest payments of that size in one quarter imply cash balances of $600 million or more, assuming that the payments are for the quarter and not for the year as a whole.

A spokesman at DEC in the UK said that the UK company did not produce half-yearly results but that business was reflecting the US pattern.

The UK company is continuing to invest heavily, with markets in the manufacturing and engineering sector particularly buoyant. DEC in the US has slowed down its traditional hiring rate by about 20%, and the UK is observing caution in taking on staff. But UK recruitment is continuing, according to the spokesman.

DEC worldwide will stick to its 25% increase in the capital spending plan and will invest over $500 million this year.

Apple Computers' profits for the first quarter of the company's new financial year doubled to $13.54 million when compared with the first quarter of 1980/81. Sales also almost doubled, from $67.6 million in the first quarter 1980/81 to $133.6 million.

This performance, if sustained throughout the year, could take Apple through the $500 million barrier for the year as a whole. The company says that it expects performance to improve as the year progresses and it reaps the full benefits of sales of the Apple III.

Wang, which is also focused on the minicomputer and micro end of the market, improved second quarter profits by $6.2 million to $25.2 million compared with the second quarter of 1980/81.

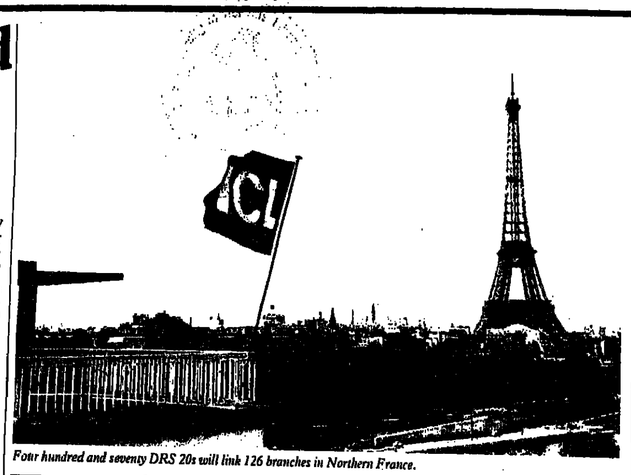
Sales for the quarter rose to $273.4 million, a $71 million improvement on the same quarter last year.

Wang's half-yearly results show the company well on the way to passing the $1 billion dollar barrier by year-end. Half yearly sales were $510 million compared with $358 million for the first half of 1980/81.

● Data General has produced slightly weaker gross profits of $19.4 million for the quarter, compared with $20.5 million for the same period in 1980/81.

Turnover rose $27 million to $182.5 million for the period, but company president Ed de Castro said that inflation and recession will continue to have a dampening effect on the company's rate of growth.

Data General's weak profit performance was a sample of the gloomy results produced by several other computer companies (see Company News, page 10).



Four hundred and seventy DRS 20s will link 126 branches in Northern France.

French bank orders DRS 20s

by Andrew Thomas

IN the biggest single deal for the DRS 20 series since its launch in October, ICL has received an order for £1.8 million worth of its distributed processing systems from one of France's leading banks.

La Caisse Regionale de Credit Agricole du Nord (CRCAN) has ordered 470 of the DRS 20 multi-microprocessor systems for installation in its 126 branch offices in Northern France. They are to be used for a variety of banking and word processing applications.

The bank's head office in Lille will also be equipped for management information and program development.

The DRS 20s will form a distributed processing network with links between branch offices and the Burroughs mainframes at the bank's main data centre in Lille. This is the first time DRS 20s have been ordered for use in conjunction with Burroughs hardware.

The Lille bank's own programming group will be doing much of the protocol conversion work required to allow the ICL and Burroughs machines to converse.

An ICL spokesman said that a complete conversion package was normally offered, but that CRCAN had not yet decided on whether to implement ICL's CO3 or the 3270 protocol used on the Burroughs system. ICL's local area network, Microlan, will be used to link different DRS 20 systems.

ICL is about to link DRS 20 systems to an IBM mainframe "somewhere in the UK," the spokesman added.

NEWS BRIEF

First digital connections for System X

THE first digital connections between System X exchanges have been made between Cambridge trunk exchange and the Arrington local exchange 10 miles away.

This is the first link in a national overlay network which will to provide digital connections between subscribers on different System X exchanges even when most of the rest of the network is still based on analogue exchanges.

Arrington is only the second System X local exchange to open. The first was at Woodbridge in summer, and the first difficulties its 670 subscribers would have noticed is that dialling other exchanges on the same exchange is much faster.

Fair's fair

THE telecommunications deregulation bill recently passed by the US Senate empowers the Federal Communication Commission to bar sales of Japanese equipment if Tokyo does not do more to let US companies into its market.

Star profits

STAR Computers, which came to the Stock Exchange's Unlisted Securities Market last year, has turned in profits 12% up on the first half of 1980. Profits were £201,000 for the half year to October 1981, compared with £179,000 for the previous year. Turnover rose by 45% to £1.6 million from £1.1 million.

Sony viewdata coup

● From front page

supply and service terminals for the public viewdata service it plans to launch in the second quarter of this year, based on Prestel software.

A total of 500 terminals will be supplied under the contract, 200 desk-top versions with 9-inch screens and the remainder with 14-inch screens, but all of them having colour displays and alphanumeric keyboards. The 9-inch model, the KTX 9000, is due to go on the open market in July and it includes a 12-page memory.

The contract also includes sales and service training in Hong Kong by staff from Sony UK. The terminals will be made at Sony's factory at Bridgend in South Wales.

● Jefferson Computer Centre in Boston, through which Prestel will be accessed from the US, was officially opened last week. It is operated by the US company Avco and will be used as a bureau on which US companies can offer regional or national viewdata services, accessed via General Telephone & Electronics' packet switched network Telenet. It will also be used as a demonstration centre by British Videotex & Teletext, which was set up last year by British Telecom, the Department of Industry and Logica to market British products and promote British standards in viewdata and teletext.

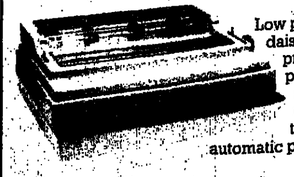
Companies including IBM, Digital Equipment, Dupont and ABC Television have expressed interest in using the centre for in-house viewdata services, while several telephone companies and publishers are expected to start private services based there.

The services based at Jefferson (which was named after the US President Thomas Jefferson, rather than British Telecom's chairman) will be accessed from terminals made in the US by companies including Zenith and Wolfdata, costing from $85 to $1,350.

NORTHAMBER LIMITED
3 & 4 DAWES COURT, ESHER, SURREY
Tel: ESHER (0372) 66397/8/9 or 62071
(from 01 nos. dial 78-66397/8/9 or 78-62071
IF YOU NEED A PRINTER TOMORROW, CALL US TODAY.
PRINTERS
NEC SPINWRITER · TEC STARWRITER · OKI
QUME SPRINT 9 · ANACOM · QANTEX · TALLY
ANADEX · OLYMPIA · TEXAS · RICOH · EPSON
SCREENS
HAZELTINE · TRANSTEC
DEC VT100 · TVI · BMC
ADD-ONS
PRINTER BUFFERS (16K)
SINGLE SHEET FEEDERS
0372 66397/62071

Computer financing
Standbrook House, 2-5 Old Bond Street London W1X 3TB
The International LEASING Company
TELEPHONE 01-491 4151 or 01-499 7955 TELEX 8954724

CENTRONICS IBM Diablo olivetti Hazeltine Texas Instruments add-ons CENTRONICS
TERMINAL CHOICE
OLIVETTI 311



Low price daisy-wheel printer with proportional spacing, multiple type fonts, automatic paper feed.
£999
RAIR 01-836 6921
6-9 Upper St. Martin's Lane London WC2H 9EG

Printed in Great Britain by QB Limited, Sheepen Place, Colchester CO3 3LL and published by IPC Electrical-Electronic Press Ltd., Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS.

PASCAL/MT+™ by DIGITAL RESEARCH from vector
Research Park, 3030 Leuven Belgium 32(16)202488. Tlx. 26202

ComputerWeekly

Thursday, February 4, 1982 Number 794 30p

'82. A great year for PT7.
PT7
THE ADVANCED FEATURE TERMINAL FOR ICL AND IBM.
FERRANTI Computer Systems

New York State $28 million order

Fistful of dollars lifts ICL

by Andrew Thomas

EXPORT success is spearheading ICL's fight back to profitability, with major successes in the US and Europe for the company's small systems. The newly-announced DRS 20 microcomputer and the bigger System 25 are poised for orders in the US and Switzerland as well as selling strongly at home.

In the US, ICL is set to win a $28 million order from the New York State Department of Social Services, which has signed a letter of intent to buy 2,400 DRS 20 systems to be installed in its offices over a two-year period, starting later this year.

The single deal almost equals ICL's 1981 total sales in North and South America of $30 million and US orders are now running at double last year's levels.

The order was won against competition from two US companies on the department's shortlist, Sperry Univac and Raytheon.

Helping the decision to buy ICL kit is that DRS 20 is currently manufactured at Utica, in New York State. ICL is planning to build the machines in the UK, but has not yet done so.

Meanwhile, in Europe, ICL has clinched a total £1.5 million of orders from several customers in Switzerland.

A bulk order for point-of-sale equipment comes from the Manlor chain of department stores. It has ordered 260 of ICL's 9512 terminals and 20 related 9535 controllers, with plans for another 250 terminals and 250 DRS 20s next year.

The Swiss Bank Corp is to install four System 25s at its branches in Zurich, Basle, Geneva and Lucerne, and tobacco dealer Ottinger/Imex has ordered an ME29 to replace its IBM system. Another ME29 goes to sportswear manufacturers Nabholz.

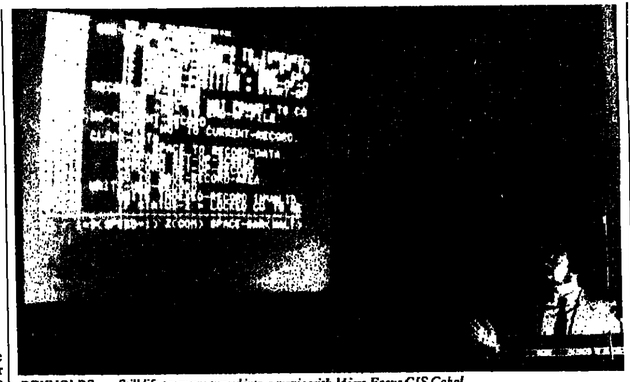
Reduner Textiles is replacing its 1901 with an ME29, and bee-keeping products manufacturer Paracell is installing a System 25.

Recent UK orders include a £100,000 deal for ten System 10 with Centre Computer Services, the Birmingham-based bureau.

ICL also looks set to win a £10 million order from supermarket giant Sainsbury, which is planning a nationwide point of sale network using System 25s to link its 2900 mainframes in London to the 216 branches throughout the UK.

These and other recent impressive boosts to the company's order book lifted shareholders as chairman Christophor Laidlaw ex-

● Turn to back page



REYNOLDS . . . Still life programs turned into a movie with Micro Focus CIS Cobol

Debugging goes portable

by Claire Gooding

SOFTWARE development has taken a major step forward with the release by Micro Focus of two programming aids which are portable across all Ansi '74 standard Cobol installations. The tools, called Animator and Slideshow, run on a microcomputer, but they are likely to reach beyond the micro market into large mainframe installations.

In a live show which brought interactive Cobol programming to life last week, Micro Focus projected on to an overhead screen the real time execution of Cobol source code running on an Apple microcomputer. The tools work in harness with the firm's lead producer, the CIS Cobol compiler, which brought Ansi '74 standard Cobol to micros for the first time.

Both products go beyond the scope of the interactive debugging tools which have long been available to programmers in low level languages like Basic.

Animator allows a Cobol programmer to step through the source code of a program as it runs. The cursor follows the logic paths, jumping down the code as the program executes at a speed set by the user. Programmers can enter test data through the screen, then run the program using the data to check values of variables, which change as the code is executed.

Slideshow is an equally visual tool which is geared to the creation and maintenance of the "user interface" part of programs. This includes menus, text displays, and still or moving colour graphics, and other means by which the non-programming user can communicate with the machine.

Large users are busy re-vamping large systems for use by inexperienced end-users, the job for which Slideshow was built. They also have a need for such tools as Animator since staff turnover and the size of their systems makes maintenance a problem.

"These products are changing what programming's all about," said chief executive Brian Reynolds. "It's like turning a still life into a movie. That sort of aid helps programmers understand programs they didn't write themselves. It means improved maintenance quality on any machine in the world."

Micro Focus has won a market for CIS Cobol — the CIS stands for Compact Interactive Standard — because it has adhered strictly to what is standard, and therefore portable. It does not rely on support outside itself like other languages, or on a particular operating system. This has given the firm an edge on others when transporting the compiler to new systems.

"Total self-residency is a must when it comes to being the first on a new processor," said Peter He-

● Turn to back page

Software journal out in spring

BRITAIN'S first journal concentrating exclusively on software is to be launched this spring by Computer Weekly. Called Software, it will be the latest in a series of innovations in the coverage of today's most important area for computer users.

Software is aimed at the people within medium and large organisations who are responsible for buying software. With a controlled circulation of 20,000, it will cover the senior and middle-ranking personnel among users with the all-important job of buying or specifying software or software services.

That includes the purchase of new packages, or even whole computer systems, as well as hiring outside staff, renting outside software or employing bureaux.

Software will also be circulated to management among software houses, as well as to systems houses which "sell-on" packages.

Estimates of the amount of programmer time which is tied up at large user sites in maintenance of existing suites of programs varies, but is often put as high as 80%. Reflecting this, Software will be concentrating just as much on staffing costs and programmer productivity as on new packages and operating systems.

The range of systems covered will span mainframes to microcomputers for commercial use.

Computer Weekly was the first journal to recognise the importance of software when it started specialist coverage of the subject in the weekly page in Software File.

Last November this was supplemented by Software Month, a regular detailed examination of one area of the business.

DEC launches into micro market

HOARE . . . OEM Allegro awaits DEC's new micro.

by Kevin Cahill

THE world's largest minicomputer manufacturer and second biggest computer company, Digital Equipment Corp, is about to launch itself into the micro market with a new machine due within two months.

This is in addition to the Z80-based single board upgrade to the company's VT100 terminal, which many UK based DEC dealers are already selling as the DEC personal computer.

The new machine means DEC will be attacking two different but complementary markets. One is standalone systems, currently dominated by Tandy, Apple and Commodore, which IBM has just joined. The other is among the estimated 250,000 users of the company's popular VT100 terminal, which can now be turned into a personal computer.

Steve Hoare, managing director of OEM Allegro which has so far sold one of the upgrades, called a Robin, said he expected the upgrade unit to sell for around £1,750. He says customers have shown great interest in the way the VT100, using the Robin, can be switched from a dumb terminal to an intelligent personal micro, "at the press of a button".

The Robin has 64K of RAM and comes complete with two 5¼in floppy disc units and the CP/M operating system.

With a basic VT100 now costing about £1,050 the upgraded VT100 undercuts the Apple III at about £3,500 in the UK and is cheaper than the IBM Personal Computer which is expected to sell here for about £2,950.

A DEC spokesman in the US said he expected a lot of existing VT100 users to go for the Robin rather than buying a standalone personal machine.

In the US DEC has opened its strategy for 1982 by cutting disc unit prices by up to 53%.

The discount is offered to any purchaser making a second disc drive with an initial RM80 unit.

Other disc drives in the DEC range have had prices dropped by 40 to 45%.

DEC also announced a big new attached processor for the VAX 11/780 range this week.

Although the rate of staff hiring has fallen recently at DEC, the company still expects to hire another 1,000 people worldwide in the coming quarter.

INSIDE THIS WEEK'S ISSUE

Labour to nationalise high technology 3
Conference attack on IT Year 4
Govt to encourage CAD/CAM in industry 6
Gestetner profits slump £10 million 9
Nation of shopkeepers turns to computers 16
Pickets at computer centre 3
Rival to Prestel 4
Low-price policy pays off 5
Peachtree plants in UK 6
Software File 7
Micro News 8
Company News 9
Systems Thoughts 10
Downtime by Chad 10
Letters 11
Op Spot 12
Programmers Page 13
Puzzler 13
People/Diary 14
Books 18
Products 20/21
Marketplace 22/23
Sales Bit 45
Jobs: Pages 24/47

STAYING POWER
1880 Range of Desk Top Computers from Cifer
The Cifer 1887
● 6 or 12 Megabytes built-in Winchester Storage.
● 132/80/64/40 characters per line.
● 256k or 64k Z80A User CPU.
● 64k Graphics CPU.
● 128 or 102 key kayboards.
● Compact size.
● CP/M, MP/M and UCSD software.
● 800k bytes built-in floppy drive.
● Add-on storage up to 48 Megabytes Winchester.
CIFER SYSTEMS LIMITED

Programmers slip down the salary ladder

by Philip Hunter

ALTHOUGH there is still a national shortage of programmers and analysts, they slipped a rung on the salary ladder in the last pay round. The increases were two per cent less than those for non-manual workers in general.

In April 1981 programmer/analysts earned eight per cent more than the average for non-manual workers, compared with 10 per cent over the preceding four years.

This conclusion is drawn in a government survey* based on weekly earnings for April 1981, and included in Bargaining Report, published by the Labour Research Department of the TUC as a guide to trade unionists on pay and working conditions.

But the finding is contested by Computer Economics Ltd (CEL), which publishes detailed surveys of pay in the data processing industry every six months.

CEL director Peter Stevens argues that pay rises in the computer industry are higher than they seem at first glance because merit awards and artificial promotions to bypass rigid pay structures are common and distort some published figures.

The fact that different interpretations are placed on job titles such as programmer and analyst also complicates the picture and makes direct comparisons between organisations misleading. The TUC report makes this clear, pointing out that although staff called programmers at the Midland Bank have a starting salary over £2,000 higher than similarly titled people at Lloyds Bank, this is partly explained by the existence of an assistant programmer grade at the Midland, for which starting salary is considerably less.

Stevens throws a new perspective on often publicised North-South differences when he claims that these do not exist in the computer industry. The only geographical influence on pay is size of town, he says.

Mike Treasure, manager of permanent recruitment for Knight Computer Services, qualifies this by pointing out that salaries in the North are slightly lower than those further South, and also in Scotland.

"So few companies have had any money to invest in DP this last year that salary rises have fallen dramatically," he adds. "As soon as money becomes available, investment and a rush for staff will come, followed by steeper salary rises."

Of the manufacturing companies covered by the TUC report, ICI pays the highest salaries to all grades of data processing staff except senior operators, with operators earning an average of £6,700, shift leaders and programmers about £8,000 and systems analysts about £9,000 in 1981. With the exception of Ford, DP staff fare rather badly in the car companies covered, particularly at junior level.

In the public sector, DP salaries are consistently lowest at the universities, where there are identical scales for both operators and programmer/analysts.

Of the public sector organisations covered in the report, British Telecom is most generous to programmers, who in 1981 earned up to £12,976 at the senior grade.

Operators do best at London Transport, earning up to £6,305, although shift leaders earn the most again at British Telecom.

* New Earnings Survey 1981: Part A HMSO £6.50.

PALMER . . . *Discussing the possibility of co-operation with former CACI chief Tony Carter*

'No competition' clause for ex-CACI staff

by Boris Sedacca

FORMER CACI employees are being required to sign non-competition agreements to obtain salaries in lieu of notice and expenses due, as well as leaving settlements from the company.

The non-competition clauses state that the individual may not be employed by or do consultancy work for any CACI client, and may not recruit staff from CACI employees.

"With the terms of settlement currently offered by CACI, my legal counsel has advised me to take my case to the industrial tribunal," said one ex-employee.

Now Tony Carter, former chief executive officer and founder of CACI in London, is to compete with CACI when his non-competition agreement lasting nine months expires in just over a week's time. Carter has set up his own consultancy, called DMW.

Ian Palmer, former senior vice-president and database specialist with CACI has been discussing the possibility of co-operation with Carter.

"I am not in a hurry to take up any job," he said. "I want to write my books and do my own consultancy. If I take something on I want it to be in keeping with my responsibility and reputation."

● In the last issue of Computer Weekly, we stated that 22 employees had lost their jobs and that another 40 had resigned. We should have said that about 40 people had left including the 22 who lost their jobs.

Robots to aid CDC expansion

by Brandon Gamester

CONTROL Data has taken a lead in the UK computer industry with a plan to use programmable robots to speed the manufacture of its disc and tape products.

Despite the high element of computer technology in robots, at the end of 1980 only 20 had been installed throughout the whole of the UK electrical and electronic manufacturing industry, out of a total of 371 in all sectors.

Figures will soon be released by the British Robot Association which will show the latter figure to have climbed to 500 by the end of 1981, but as before the majority are accounted for by the automotive and metal goods industries.

Control Data's plan is to install 10 robots by the end of 1982 at its magnetic media plant in Brynmawr, Gwent. According to plant manager Dennis Mahoney, two Unimation Puma robots have already been installed and are used to carry out part-machining work.

The robots are being used to expand production and no labour will be displaced by the machines, which are expected to do the work of six to eight men over a 24-hour period, says Mahoney.

The automation at the Welsh plant comes near the end of a period of major capital investment. Since 1979 £10 million has been spent and the workforce has grown from 500 to 850. More staff will be taken on over the coming year but this is likely to be in tens rather than hundreds.

The Brynmawr factory currently exports 70% of its output. By the time the additional robots are installed it will be capable of producing a million discs and 2½ million reels of tape a year, to make it the biggest operation of its kind in Europe.

DBMS fo… micro wi… UK users

by Claire Gooding

THREE major deals have b… UK users closer to getting … here for one of the world's … popular database manage… systems for microcompu…

They have been signed by … chester-based Infodata, which … recently appointed distributor … this country for FMS 80, … to be the most popular da… management system … microcomputers running … CP/M operating system. It … distributed by US comp… Systems Plus.

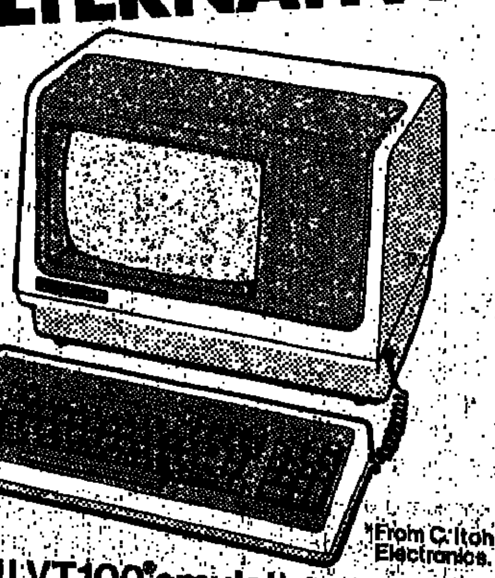
Microcomputer manufac… Memory Computers, LSI … Mediatech have bought the … duct to offer on their sales. It … also been added to the list of … proved software products for … lett-Packard's HP125 … along with Infodata's own … information system Ibis.

Infodata's marketing dir… Paul Armour describes FMS … giving the best of both worlds … ing easy to use but at the same … comprehensive.

"It gives the ability to … turnkey applications … quickly," he said. "With … thing this comprehensive, … would usually spend a long … learning how to use it, but FMS … allows for different levels of … so that once a user has mast… the elementary parts he can … short cuts and make the system … more."

The product works on … levels, producing file struct… inquiries, standard reports … first, complex report generation … the second, and a structured … gramming language, EFM (… tended File Maintenance) as … third.

Author of EMS 80 David … man, is currently working on … bit version of the system for … Unix and CP/M 86 opera… system.



GEISLER . . . *People are buying experience.*

UK companies ahead with Z-Net

by Robert Parry

BACKING up Zilog's push to establish Z-Net as a low-end standard for microcomputer networks, two British companies are gaining an edge on rivals by building in Zilog's network technology.

Both companies, Research Machines of Oxford and Watford-based Automatic Revenue Controls, took out Z-Net licences in the spring of 1981 and now feel they are ahead of competitors in bringing out network-based systems.

Research Machines' product, to be sold as the Chain, is a network joining up systems of its new educational microcomputer, the Link 480Z. Aimed at primary and secondary schools, where its predecessor the 380Z is well established, the 480Z is a cassette-based machine designed to act as a network station.

Co-operation between Research Machines and Zilog speeded up development of the Chain, according to Research Machines' marketing director Mike O'Reagan, and opened up a way to add other manufacturers' equipment to the network by fixing on the Z-Net standard.

The Z-Net based hotel security system from ARC, Guestkey, combines security control via plastic keys programmed for particular locks with management information. After a six-month trial, a full system is being installed in Trust House Forte's Grosvenor House Hotel in London, the first of several to be installed by THF.

According to Zilog's European marketing manager, Pamela Geisler, what people are buying with the Z-Net licence is experience. The interface to the network only needs three chips, including a Z80A processor.

ComputerWeekly

Thursday February 4, 1982
Vol 32 No 794

100,000 circulation — the highest ABC figure of any computer journal in Britain

IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telex: 892084 BISPRS G

EDITORIAL
Inquiries: 01-661 3500 ext 3542/3541
Editor and Publisher Simon Timm 01-661 3122
Deputy Editor Brandon Gamester 01-661 3124
Associate Editors Kevin Cahill 01-661 3041; Boris Sedacca 01-661 3052; David Craver 01-661 3050
Software Editor Claire Gooding 01-661 3043
Micro Editor Robert Parry 01-661 3044
Reporters Donald Kennett 01-661 3049; Philip Hunter 01-661 3051; Andrew Thomas 01-661 3500 x3422; Maggie McLening 01-661 3500 x3423
Chief Sub-editor Mike Marples 01-661 3053
Deputy Chief Sub-editor Nancy Pocock 01-661 3500 x3545
Sub-editor Julia Cotterill 01-661 3500 x3544

DISPLAY ADVERTISING
Advertisement Manager Harry Hutson 01-661 3102
Deputy Advertisement Manager Chris O'Hea 01-661 3125
Sales Executives Steve Bass 01-661 3500 x3570; Gordon Bradley 01-661 3500 x3572; David Hogan 01-661 3500 x3539; Xenia White 01-661 3500 x3571
Manchester Harry Alkin 061-872 8861
Birmingham Ken Parrott 021-356 4838

ADVERTISING PRODUCTION
Display Roger Albury 01-661 3500 x3574
Classified Steve Lever 01-661 3104; Martin Lawrence 01-661 3500 x3575

CLASSIFIED ADVERTISING
Advertisment Manager Brian Durrant 01-661 3106
CONSULTANCIES SALES
Assistant Classified Manager Chris Prier 01-661 0121
Sales Executives Julie McInally 01-661 0121; Melanie Lindemen 01-661 0121
DIRECT CLIENT SALES
Telesales Manager Ian Carter 01-661 0121
Supervisor Neil McDonnell 01-661 0121
Sales Executives Ian Faux 01-661 0121; Denise Smith 01-661 0121; Neil Marchant 01-661 0121; Tracey Benstead 01-661 0121; Chris Knight 01-661 0121
Manchester Owen Kelly 061-872 8861
Birmingham Vic Sheret 021-356 4838

BRANCH OFFICES
Birmingham: Union House, 202 Walsall Road, Birmingham B42 1BA. 021-356 4838
Manchester: Grove House, Skerton Road, Manchester M16 0WL. 061-872 8861
New York: 205 East 42nd Street, New York, NY 10017. (0101-212) 867 2080

CIRCULATION
Terms of circulation control
Computer Weekly is sent free of charge in the UK to the following categories only: Company directors, company secretaries, management services executives, civil servants responsible for computing, management/computer consultants, DP managers/supervisors, systems analysts/O&M officers, programmers, operators and computer field engineers.
Subscriptions
UK £22, Students £11; US, Canada $93.60, Students $46.80; Europe £39.12, Students £19.56; Middle East, North Africa (airmail) £52.64; North & South America, Southern Africa, South Asia (airmail) £62; Far East, Australia & New Zealand (airmail) £70.84.
Circulation Dept
IPC Business Press (S&D) Ltd, Oakfield House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 59188.
Publishing Director: Dr J A G Thomas
Editorial Director: Chris Hipwell.
Published weekly on Thursday. Registered at the Post Office as a newspaper
ISSN 0010-4787 © IPC Business Press Ltd 1982.

Alex Sozonoff, vice-president of the Information Systems International Division of Harris Corp and William Waldegrave, Parliamentary Under-Secretary of State in the Department of Education and Science, at the opening of the computer centre at Lanchester Polytechnic, Coventry.

£1m computer centre picketed in row over Harris system

by Chris Youett

ANGRY students and lecturers picketed Lanchester Polytechnic's new computer centre at Coventry last Thursday, complaining that the new computer system was unreliable and had given poor service since it was installed last April.

The £1,000,000 centre, which was built largely on donations from Harris Information Systems and Marples Ridgeway Builders, has what is said to be the largest Harris system in the world outside the US.

The 2 Mbyte Harris H800 has so far proved unreliable, said senior computer science lecturer Rod Gealish. "Many of my students are worried about not being able to get their degree course work completed on time," he added.

Harris vice-president Alex Sozonoff told demonstrators: "There are always teething problems. It is a complex system and I am very sorry this has happened. We could have done better and I will take steps to put everything right."

The centre, which the City Council hopes will serve local schools as well as the polytechnic, was opened by junior Education Minister William Waldegrave, who said: "It is quite essential, even when resources are as short as they are now, to continue to direct enough money to the new technologies.

"It is also essential to manage scarce resources of all kinds in the education world with the same ruthless eye to efficiency that has been forced on industry."

Lanchester's new computer centre is an addition to Harris H500 and H100 systems which were already installed at the polytechnic. There are plans to connect all three processors to form a local area network.

The system replaces an ICL 1903S and has over 100 video terminals. Languages available include Fortran 66, Fortran 77, Cobol, Basic, RPG/2, Snobol and Pascal. It runs a Cincom Total database plus graphics software.

BT releases plans for first joint ventures

by Donald Kennett

THE long-awaited news of how British Telecom will tackle the government's proposal to set up joint ventures as a means of raising investment capital was released last week with the announcement of Martlesham Enterprises.

Operating in partnership with several City financial and management organisations, Martlesham will act as a holding company with plans to launch several commercially active subsidiaries over the next two or three years.

Ideas for commercial products or services generated by BT's research activities at its Martlesham Heath laboratories near Ipswich will form the basis of new companies in which the inventors will be able to have a stake.

They will be able to call on Martlesham Enterprises for advice and financial support, and will be able to use the resources of the laboratory on a commercial basis.

Land is available in the area and the new venture could well spawn another science park of high technology companies.

Involving BT in joint ventures was one of the original proposals the government made when announcing the British Telecommunications Bill 18 months ago. It was seen as a way for BT to raise investment capital for some of its activities, but the then chairman of BT, Sir William Barlow, rejected the idea.

Current chairman Sir George Jefferson said: "Martlesham has always been a powerhouse of ideas which have exceeded the direct needs of the telecommunications business." Joint ventures will enable many more of them to reach the market.

BT spent £35 million on research last year, and Martlesham Enterprises has been set up with a share capital of £250,000, of which BT owns 30%. BT will be able to earn royalties as well as dividends from the new activities and will be free to sell off its holding when each subsidiary reaches the stage of being publicly floated. It puts no financial burdens on BT's customers, Sir George said.

Chairman of the new company is Mark Burrell, a director of merchant bank Lazard Brothers. Lazard has 20% of the shares and controls a further 20% through Raeburn Investment Trust.

Electra Investment Trust owns 25% and management company Thompson Clive and Partners the remaining 5%. Electra's managing director Michael Stoddart, who is a director of the new company, said: "Martlesham Enterprises represents just the right combination of skills to give the best possible backing to innovative ideas from Martlesham Heath."

Labour Party pledge to nationalise high technology industries

by Our Parliamentary Correspondent

PUBLIC ownership of the microelectronics and other high technology industries has been advocated by the Labour Opposition in the Commons.

Labour's Shadow Industry Minister, Stan Orme, has called for a massive public spending programme of £8 billion to £9 billion as a means of cutting back the 3 million dole queue.

And he said during a Commons debate on the jobless figures that he wants much more spent on knowledge intensive industries such as computers, robotics, machine tools, telecommunications and energy-saving equipment.

Orme identified these as "priority areas".

He went on to attack the government for hiving off assets, such as sections of the telecommunications industry, and said the next Labour government would renationalise those assets at the earliest opportunity.

He went on: "A future Labour government will extend public ownership in key sectors of the economy, not least in areas where new industries such as microelectronics and high technology will have to be created. This is where public money can go, where investment can take place and where we can give a positive lead to industry."

He recalled that his government had created Inmos.

Orme's speech followed the government's announcement that unemployment had risen above 3 million.

His criticisms were answered by Industry Secretary Patrick Jenkin, who said the government had been spending considerable sums to stimulate new technological developments.

Jenkin said that the fear that new technology would inevitably lead to fewer jobs had hampered progress down the centuries.

He tried to reassure MPs by quoting the Advisory Council for Applied Research and Development, which said: "More unemployment results from loss of market share following a failure to innovate than from the introduction of new technology. If new technology leads to an increase in market share, there is generally an increase in employment opportunities."

Japanese unemployment was low because the Japanese had innovated and captured new markets. That was why the present government had taken specific measures to encourage the spread of new technology in Britain, Jenkin went on.

The government had maintained and expanded the product and process development scheme and introduced schemes to accelerate the spread of modern microprocessor technology, he reminded the House. Under the Microprocessor Applications Project, MAP, £55 million had been allocated to make industry more aware of that enormously important revolution and to help with investment schemes.

Some £40 million of that had been committed to specific projects by the end of 1981, with £19.8 million actually spent.

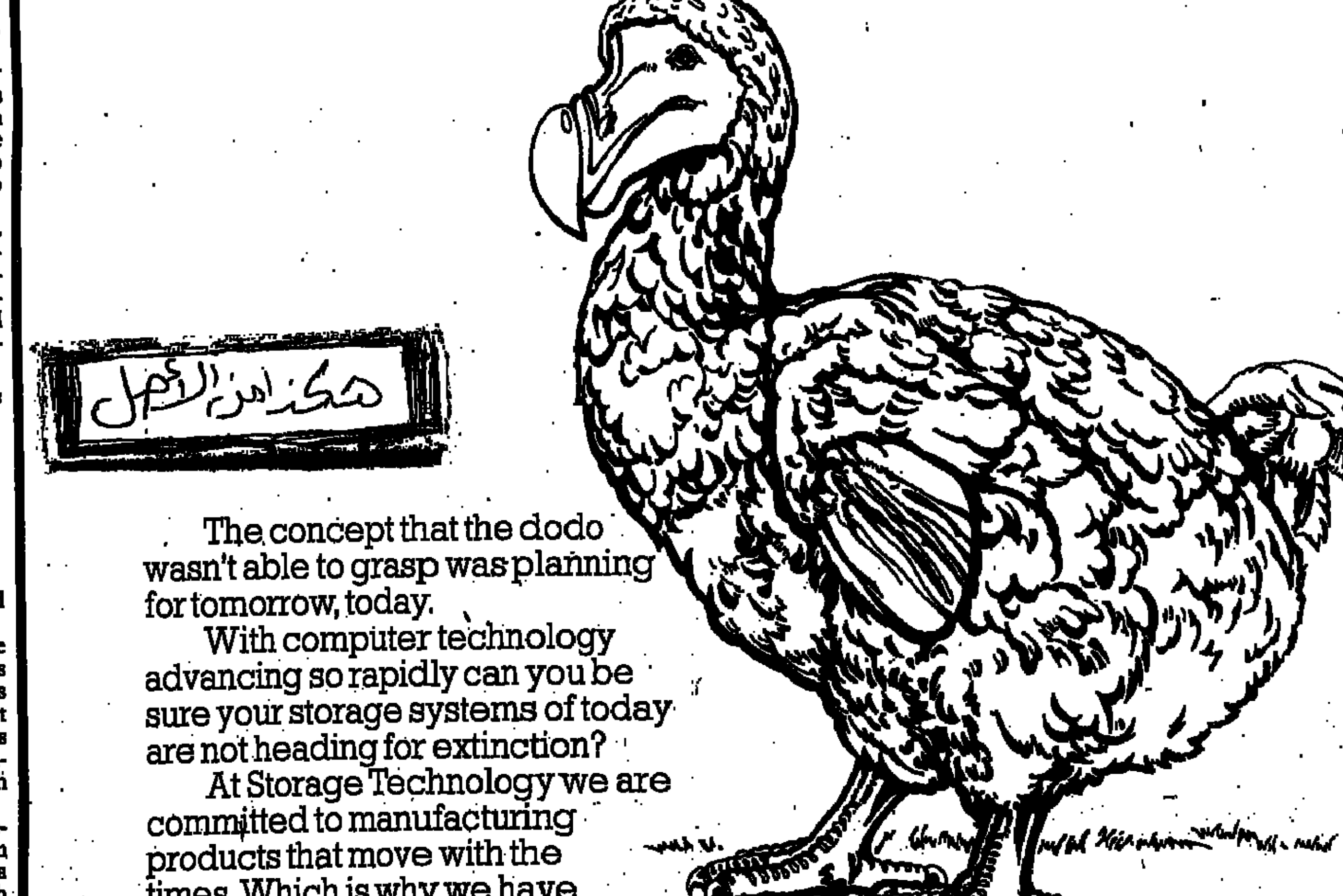
In addition, £55 million had been allocated to the Microelectronics Industry Support Programme, MISP, to help the industry develop its products, Jenkin pointed out.

There were schemes in this country to support the development of fibre optics, of robot machine tools and integrated robot systems, he said.

● Government promises CAD/CAM support. See page 6.

ORME . . . *"We can give a positive lead to industry."*

EVOLUTION OR OBSOLESCENCE?



The concept that the dodo wasn't able to grasp was planning for tomorrow, today.

With computer technology advancing so rapidly can you be sure your storage systems of today are not heading for extinction?

At Storage Technology we are committed to manufacturing products that move with the times. Which is why we have become world leaders in supply and maintenance of a full range of plug compatible peripherals.

We design and build our own high speed, high density storage systems, so that we provide what you need, when you need it.

Today we are planning unique new data systems, printers, communications processors, and our own CPUs.

And we provide a service backup that other companies will strive to match in the future.

If you are looking for ways to ensure that your system stands the test of time, take a close look at Storage Technology.

For more facts and information on tomorrow's products, today, call Roy Dodds, UK Sales Manager on Esher (0372) 67041.

STORAGE TECHNOLOGY

World leaders in main-frame computer peripherals.

Storage Technology Ltd., Churston House, Portsmouth Road, Esher, Surrey KT10 9AD. Telephone: Esher (0372) 67041.

UK government's awareness campaign attacked at EEC conference . . . Rory Johnston reports

IT Year 'will increase mistrust and conflict'

THE UK government's awareness campaign for Information Technology Year has been condemned as highly misleading at an EEC conference. It conceals the problems to do with new technology and discusses only the benefits, the conference was told.

Speaking to the EEC's gathering on The Transition to an Information Society, Professor Neils Bjorn-Andersen of the University of Copenhagen pointed to a National Computing Centre pamphlet on how IT would aid every aspect of education. This was "like selling a trip to Guernsey," he said.

The result would be to increase mistrust and conflict in society. In Denmark, promotional material gave the pros and cons and encouraged debate, he added.

Eric Howe of the NCC replied that he thought there might have been the same reaction on the move from slate and chalk to paper and pencil.

The four-day conference, convened as part of the EEC FAST programme Forecasting and Assessment in Science and Technology, made a series of recommendations to the Commission for further research, in such areas as: How to protect children from over-reliance on IT, "data bank imperialism", new methods of indexing from the user's point of view, methods of training, and the use of IT in surveillance – benefits in looking after single old people for example, but also the possible threat to civil liberties.

Professor Giuseppe Lanzavecchia of the Italian Atomic Energy Commission called for a co-ordinated Europe-wide programme of research which could make sensible decisions about which technologies could best be acquired from the US and Japan and which could best be developed independently. He referred to the proposed Esprit programme, currently under consideration at the Commission, for promoting component manufacture, robotics, and office automation. The plan is expected to be published by the end of 1982.

Much of the talk at the conference was along the traditional lines of "technology must be designed more from the human angle." This led one senior UK civil servant to complain that the meeting showed a lack of appreciation of the real world.

"It is economic survival that governs what we do," he said, adding that the conference had not been a success because it had failed to come up with any answers.

Others among the 120 participants thought that at least technologists and social scientists had been brought together, and that better ways of assessing, for example, the impact of automation on factory employment might result.

Organiser Enid Mumford, of Manchester Business School, pointed out that the venue, the Selsdon Park Hotel, had also hosted the Tory conference in 1970 that had led to the expression Selsdon Man. Perhaps after this meeting Selsdon Plan would become as famous, she said.

BJORN-ANDERSEN . . . UK campaign "misleading."

Go-ahead for French electronic directories

DONDOUX . . . Electronic directory should save money in towns.

THE French government's plan to provide electronic telephone directories is moving ahead, although as a voluntary trial, despite reports that the Socialist administration would axe it. This was made clear to the EEC FAST conference by Jacques Dondoux, head of the French PTT, who said that former President Giscard's revolutionary brainchild had been operating at a profit and was hoping to continue to do so.

Last year 250,000 terminals were installed in Brittany and Paris, and a further 500,000 would be ordered in 1982, Dondoux said. Other applications, such as advertising, would be promoted for the terminal, he said, but care would be taken not to compete with small ads in newspapers. "We don't want to destabilise anything," he explained.

The directory system would thus be competing with Teletel, the French viewdata service. "We find this compatible," Dondoux said.

The original idea of the scheme was to encourage the development of cheap terminals by the generation of an enormous market. The terminals are provided free, posing a serious threat to the sale of Teletel sets.

Under the new arrangement one in two households in the Brittany experiment was opting for the electronic directory, Dondoux reported. Those who did not were given photographically reduced printed directories, with a plastic magnifier.

The electronic system should save money in towns, Dondoux said, by, for example, eliminating the four kilos of paper directories delivered to each house in Paris every year. The scheme would not be extended to country areas where it was not economical.

Dondoux laid great stress on the choice that was being given, saying that for any technical change the new administration was "negotiating between the potential winners and potential losers," ensuring that society as a whole benefited. He thought that nationalisation of the French telecommunications companies would not change the competitive situation; the concern was simply to avoid private monopolies.

Asked about the effect of international data traffic on GATT trade agreements, Dondoux said he thought that data was "not really that important."

Advice on finding backers

by Maggie McLening

COMPANIES or individuals with sound ideas for technological developments but insufficient money to back them can now turn for assistance to a new finance consultancy company.

Formed specifically to help this type of enterprise, it is part of EPW Investments, finance brokers based in London's Lincoln's Inn.

Called The Consultancy for Innovation, Incon, it was started by Peter Woods, its managing director and former conference director for the Financial Times.

Many companies that are eligible for government grants in the fields of electronics, software and genetic engineering do not apply for them, according to Woods.

"The majority of British companies and individuals do not want to apply for government help because they are afraid that it will interfere and monitor everything," he explained.

WOODS . . . "Most don't apply to the government in case it interferes."

A team of technical advisers will assess the merits of ideas for projects submitted to Incon, and there will also be six associate executives on call with experience in related fields such as financial analysis and marketing.

Based on the findings of the assessment, a decision will be taken on whether the client is eligible for any government grant, or whether funds from the private sector would best serve his interests.

US bulletin boards 'rival to Prestel'

by Maggie McLening

AN idea which started in America is developing into a rival for Prestel in this country. Free access computer bulletin boards, effectively a dial-up viewdata service, are becoming more popular among personal computer users for swapping messages and program information.

The first system in this country was set up by Fred Brown who owns a microcomputer shop called 3-Line Computing in Hull. He adapted the American networking program Forum-80 for use on his Tandy TRS-80 as a hobby, and now uses the system to set up details of programs for sale at his shop.

Word spread through the TRS-80 user groups, and there are now 11 bulletin boards in Europe; five in the UK, and the remainder in Holland and Sweden.

A major advantage of this system over Prestel is the cost: users may put information on the boards for the price of the telephone call.

'Micro in all secondary schools' now in sight

by our Parliamentary Correspondent

EXCELLENT progress in the Department of Industry's Micros in Schools Scheme was reported by Information Technology Minister Kenneth Baker during exchanges in the Commons.

Some 2,200 applications for microcomputers had been processed by the end of 1981, Baker said. And with the extension of the scheme to all secondary schools, large numbers of applications were expected this year.

Indicating his satisfaction with the success of the programme, Baker added that the government was on the way to reaching its objective of every secondary school owning at least one micro by the end of this year.

A total of £9 million has been allocated by the Department of Education and Science (DES) for the training of teachers, Baker said. He agreed that it would be useless to supply schools with microcomputers if staff were not trained to use them.

Labour MP Tom Ellis called on Baker to add to the list of approved suppliers, currently Acorn and Research Machines, to allow other manufacturers to participate in the microcomputer scheme.

Baker answered that while Acorn and Research Machines would cover the extension of the scheme from this month, he would look at other manufacturers if the scheme were extended to primary schools.

Baker promised to pursue a suggestion made by Conservative MP Gerard Neale to study the use of computerised learning methods in primary schools through the telephone network.

He also said he would draw to the attention of the Secretary of State for Education, Sir Keith Joseph, the remarks of Labour MP John Garrett, who said that the work done by the DoI was being undermined by the DES cuts in the facilities available for training teachers in computing.

SALES BRIEF

Honeywell delivers UK's first DPS 7

THE first Honeywell DPS 7 machine in the UK has been installed at re-insurance broker Pearson Webb Springbett in Cheltenham. The range is made in France. The system is based on a DPS 7/45 processor and cost £200,000.

It will be used by 80 terminals accessing the company's online broking and underwriting applications from offices in the UK, Bermuda and New York. The Honeywell Level 64 which previously supported this work will continue to be used for development, back-up and batch work.

Gas system

FERRANTI has won a turnkey order for a natural gas production and distribution control system for one of West Germany's major producers, Brigatta und Elwerath Betriebsfuehrung. Ferranti's German subsidiary will develop all the applications software, while the hardware, seven Ferranti Argus 700-Gs, will come from the UK.

£300,000 saving

BOOTS, the high-street chemist, has increased its order by £93,000 for weight-monitoring equipment from Morden-based Kins Applied Technology, following a four-month trial with a limited system. The company should be able to save £300,000 a year by extending the system to cover most of its non-pharmaceutical lines. The enlarged system will cost about £150,000.

Hong Kong first

THE first ICL System 25 in Hong Kong has been ordered by Tootal's subsidiary English Sewing. It will use an enhanced version of ICL's business control package Stars for inventory, orders, debtors, accounts and sales analysis work in connection with its 800 customers throughout South East Asia.

MoD software

FLEET-based consultancy Systems Designers has won a major Ministry of Defence software design contract to carry out communications modelling, define a management information system and develop software tools to handle information in the Ukadge air defence system.

Maintenance deal

GENERAL Computer Systems' engineering division has been signed up by IBR Microsystems to do maintenance and repairs under warranty on the Nippon Electric PC-8000 microcomputer. IBR expects to sell 3,000 PC-8000s in the next year through its 41 dealers. GCR expects to gain £250,000 worth of business over the next 15 months through the deal. Over 100,000 PC-8000s have been sold in Japan.

Altered images

In last week's supplement on Finance for the Computer we published a picture of Jim Chester of NatWest Bank alleging that he was Brian Johnson of NMW. Apologies.

OCL looks set to loosen its ties with IBM

by Boris Sedacca

THE UK's largest container shipping group, OCL, looks set to move another step away from IBM's apron-strings when it decides this week whether to buy Datapoint equipment for its regional offices.

OCL is a leading IBM plug-compatible installation and was the second UK user for National Advanced Systems' large-scale AS9000 mainframe processor. The first buyer of the Hitachi-designed system was Guardian Royal Exchange.

According to Brian Barber, head of management services at OCL, the company plans to integrate its computing facilities into new office automation functions at seven regional offices initially.

"At the moment, our regional offices have screens connected to our mainframe through a teleprocessing network. Our objective is to provide users there with additional facilities for local processing, word processing and electronic mail."

Barber added that the system would be implemented over a period of 18 months to two years. "The proposal for Datapoint has been through the board of our European company and now has to go through the main board which will decide this week whether to go ahead or not, although I do not anticipate any problems."

The system will eventually be expanded to OCL's office in Rotterdam which co-ordinates the activities of shipping agents on the rest of the Continent.

Barber explained that IBM could not provide an integrated office automation system at the time OCL was making its evaluation. "I do not think that IBM has got its act together in office automation. One could only buy individual boxes at the time."

IBM has recently been pushing a complicated software strategy for office automation, Distributed Office Support Function and Distributed Office Support Systems, which ties in previously discrete pieces of word processing hardware and establishes the beleaguered 8100 communications processor as a kingpin for integration with host data processing on mainframes.

"IBM may well be establishing a software standard for the future but that does not stop users from buying other hardware once it has done so. OCL is in the shipping business and I see no religious ethic which says that a company must stay with IBM software."

Barber contended that OCL has had a large system in existence for a long time and that Datapoint's hardware was compatible with that system. Therefore, he argued, there was no need to stay compatible with IBM.

Exciting comms potential

by Donald Kennett

A POINTER to possible directions communications services could take in the newly liberalised UK market was given last week by two US researchers.

Dispute arbitration, 24-hour bridge games, and political lobbying could all be organised through computer-based message services, with their operating software tailored to serve specialised groups or applications, members of the Butler Cox Foundation were told.

The researchers are Drs Murray Turoff and Roxanne Hiltz, a computer scientist and a sociologist who have co-operated since 1974 in running and studying the effects of the Electronic Information Exchange System based at New Jersey Institute of Technology.

TUROFF . . . EIES is still an experiment.

The group currently has 800 members in the US and Europe. EIES is still an experiment rather than a full commercial service, although it is sustained by members' subscriptions, and members have to agree to co-operate with the research on its use.

Facilities on the service include messages, conferences, files and a text editor.

France still welcomes US partnerships

by Jack Gee

FRANCE is trying to reassure US computer companies that its moves to strengthen domestic computer manufacturers do not mean that the Americans must leave. The French government is reacting to the announcement that Honeywell is to reduce its stake in CII-Honeywell Bull from 47% to under 19%.

The Minister for Economic Planning, Michel Rocard, has publicly reassured US firms which are investing in projects within the French computer industry that their partnership is still welcome. This is despite nationalisation of the biggest French computer companies and the direction of others to stop co-operative ventures with the US and join together within France.

Companies which are due to be nationalised, including Thomson and Saint Gobain, majority owner of CII-Honeywell Bull, are being told to co-operate, and Thomson has broken off talks with SEL on marketing the US company's minicomputers.

The government has also vetoed an agreement for French minicomputer manufacturer SEMS to link up with SEL.

Now Rocard has softened the theme by illustrating the sort of deal which the French government is keen to promote. He has singled out a joint venture between Harris in the US and Matra to build semiconductors in France.

Speaking at an award for regional expansion, which has gone to a Matra-Harris pilot plant at Nantes on the Atlantic coast, the Minister said: "One of the most modern production units in Europe for integrated circuits has been built at Nantes in under three years.

"This has created 300 jobs with 1,500 planned within five years."

HAZLEWOOD . . . "A complicated product with simple benefits."

Westinghouse low price policy pays

by Claire Gooding

A LOW pricing policy has paid off for Westinghouse Management Systems, supplier of systems products to the IBM market.

Wethinghouse's total European revenues rose 26% to £3 million in 1981, with the UK making the highest contribution at £500,000.

In a year of heavy investment in research and development for new products, Westinghouse managed to increase its total number of installations by almost 1,000 to 5,250, although many DP shops are looking twice at software spending.

This is partly because the company has stuck to a policy of selling at a low price in order to get as many users as possible, and partly because it identifies its markets carefully and pitches particular products at specific areas.

"It is not a fantastic growth on 1980 but the significant point is that prices have stayed more or less at the same level," said company president Eric Lataud, who describes the company's growth as real rather than inflationary.

The figures reveal that Westinghouse is making more on each sale, although prices have remained stable. That indicates the company is selling less in the way of small systems software and making the most of its traditional large system market.

The newest of its products, JCLMAN, does a specific job within a large installation. The JCL Manager gives the IBM DOS/VSE user an easier method of performing job control tasks. It is designed for online access, with automated documentation and foolproof error-handling.

"It's a complicated product, but the benefits it offers are quite simple," said Dave Hazlewood, UK manager. "The poor DOS user has been stuck a long way behind the OS man in terms of facilities available to him."

JCL is a three-part product consisting of a JCL library, a runstream generator, and a procedure control language.

There is also an execution control language which allows decision making during the running of the job. According to Westinghouse installation takes a matter of minutes and the product is available at an introductory price of £1,750 until April, costing the full price of £2,750 after June.

INFO is Computers
INFO is Word Processors
INFO is Communications
INFO is Software
INFO is Supplies
INFO is Services

INFO'82 is at The Barbican London 9-12 February 1982

1982 is Information Technology Year and the biggest IT event is INFO 82 – Europe's leading office automation show. No other exhibition gives such a complete picture of the electronic office of the future. And this year's INFO will be bigger than ever, with over 120 exhibitors showing the most advanced business information technology – including computers, word processors and information retrieval systems. There's even a section "Software in the City", with the latest developments from Britain's leading software specialists.

Don't miss the new world of INFO 82 in the heart of the City of London.

MAKE IT YOUR BUSINESS TO COME

SEND FOR YOUR COMPLIMENTARY TICKETS NOW!

5th European INFORMATION TECHNOLOGY and Management Exhibition & Conference

To: B.E.D. Exhibitions Ltd. 44 Wallington Square, Wallington, Surrey SM6 8RG
Please send me ______ complimentary tickets to INFO '82
Name
Job Title
Company Name
Address
CW/4/2/82

TRIVECTOR
HARDWARE
BRITISH-MADE MICROCOMPUTERS AT THEIR BEST
SOFTWARE
TRIVECTOR COMMERCE LIMITED SUNDERLAND ROAD SANDY BEDS. TELEPHONE 0767 82222

Peachtree will plant its software in UK

by Boris Sedacca

A SMALL US software house which has suddenly come under the limelight as a supplier to IBM for its Personal Computer is setting up shop in Maidenhead.

The new operation will cover Atlanta-based Peachtree's activities outside the US with the aim of selling over 4,000 packages through dealers in the UK and Europe during its first year of operation.

The UK company will be headed by John Hale, previously managing director of Hale Computer Services.

Management Science America, the big US software house which specialises in applications software for IBM's mainframe range, bought Peachtree in June last year.

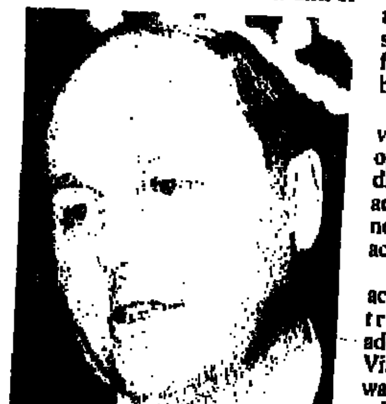
According to Michael Hunt, vice-president of international operations for MSA, his company did not know of IBM's plans to adopt Peachtree's software until negotiations began for Peachtree's acquisition.

Apart from the standard ledger accounting packages which Peachtree supplies, IBM has also adopted Personal Software's (PSI) VisiCalc financial modelling software. Peachtree's equivalent is called MagiCalc.

Hunt added: "The terms of Peachtree's agreement with IBM do not preclude us from selling MagiCalc in competition to IBM on its Personal Computer."

Hunt also claims to have a competitive edge against VisiCalc because MagiCalc has been integrated into the rest of Peachtree's packages. Whereas one has to key in figures from scratch with VisiCalc for things like revenues and costs, this data may be pulled in instantly off the files of other Peachtree packages and put into MagiCalc, he says.

"We have 40 people dedicated to producing microcomputer software which roughly translates to $2.5 million a year spent on research and development, compared to $13 to $14 million a year on the mainframe side of MSA."


HUNT . . . "We have 40 people dedicated to producing microcomputer software."

HALE . . . Heading UK operation.

Govt to encourage the use of CAD/CAM techniques in industry

by Our Parliamentary Correspondent

MORE pressure came in the Commons last week for the government to increase its backing to computer users.

Further assistance to industry in using computer-aided design and manufacture techniques will continue to be reviewed by the Department of Industry, John Wakeham, Under Secretary of State for Industry said in the Commons.

But the Minister said that the primary responsibility for ensuring that CAD/CAM techniques were introduced into industry must rest with those who sold them and those who used them.

The Department was encouraging a wider appreciation of the benefits that these techniques could bring to a number of manufacturing industries with a three-year awareness campaign which began this month.

He also reminded MPs that financial support for relevant research and development and pre-production orders was available within existing schemes.

Reports of plans approved by the Japanese Ministry of Trade and Industry for Japan to take a "massive leap forward in technology based on the increased use of computers and robots" were quoted by Conservative MP Peter Viggers in support of a plea to the Prime Minister to encourage change, innovation and flexibility in industrial practices.

Mrs Thatcher agreed that it was essential for the prosperity of British industry, and for the future prospects for jobs, for industry to adopt the very latest technology and to be ahead in doing so.

She told Viggers it was notable that countries that had clung to outdated working practices and outdated technologies had the higher levels of unemployment. Those that had been among the first to embrace new technology had the lowest levels of unemployment and high measures of prosperity.

● Since last April the government has received some 1,150 general inquiries from companies about the government's robotics scheme and 80 firm applications for assistance have been received, Kenneth Baker, Minister for Information Technology, stated in a Commons written answer.

Transpac bid to double computer connections

by Jack Gee

THE French data packet transmission network which will shortly be linked to the UK, is now connected to 125 data banks. Dubbed Transpac, it plans in 1982 to repeat its performance of last year in doubling computer connections.

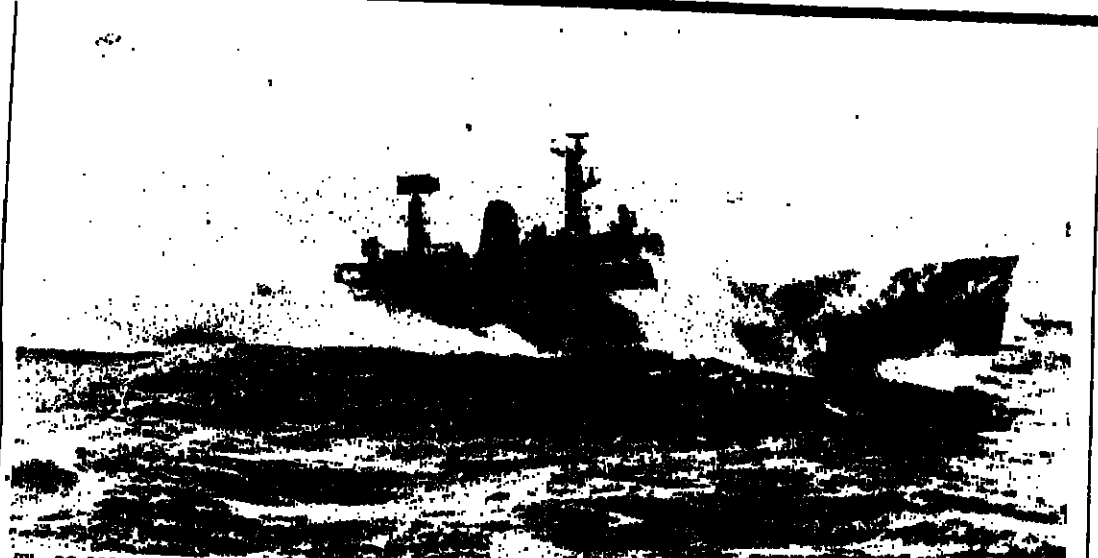
Access to Transpac by banks, companies and government offices now totals 6,000 compared with 3,000 at the end of 1980. It will reach 12,500 by the end of 1982, the network organiser reported.

Transpac will also soon be linked to Japan. It has been connected with West Germany since last October, and has access to other Common Market countries and Switzerland via Euronet, as well as to the US, Spain and Portugal.

The UK's public packet network PSS opened last summer and is to be linked to IPSS, the older international version, in the next few months. So far UK-based users of IPSS, PSS and Euronet are separate groups with few of their members overlapping.

The French Telecommunications Authority has chosen Societe d'Etudes des Systems d'Automation (SESA) to develop the second generation of Transpac. SESA had already been prime contractor for the network's first generation.

SESA, now the world's leading data network supplier, reports excellent results from its jointly owned American subsidiary SESA-Honeywell Communications Inc.


The 28,000 spares carried by this frigate need a sophisticated control system.

Navy stock control on DEC

by Andrew Thomas

DIGITAL Equipment has scuppered the opposition by winning a contract from the Royal Navy to supply on-board computers.

Following 12 months' trial ashore and three months at sea, the contract was given to Digital to supply four pilot systems worth £385,000 over the next two years. The machines involved are PDP-11s and VT-100s with extended facilities.

A Royal Navy frigate carries over 28,000 spare parts, worth £1 million. The present manual stock control system is cumbersome, and the Navy was looking for a computerised system not only for spares, but for general administration aboard ship.

The computers will be installed in the stores office amidships, which is the most stable part of the ship. No specialist training is required for the seamen who will operate the system via VDUs, giving them instant access to stores status and availability.

The shipboard environment is far harsher than that to which computers are usually exposed, so one of the first priorities was to ascertain whether or not the PDP-11 would stand up to the extremes of temperature, pressure, vibration and shock, and the continuous motion of the vessel.

A development system is currently operating at Gosport, and the remaining three trial systems will be installed at the Royal Navy supply school at Chatham, HMS Dolphin (the submarine base at Gosport), and a serving ship.

Depending on the performance of the pilot system, the Navy has plans to install similar systems in a total of 83 ships, submarines and shore bases over the next 10 years.

Rivalry hots up in hotels

by Maggie McLening

USE of microcomputer systems in hotels and restaurants has intensified the competition for a share of the market, estimated to be worth over £100 million a year.

NCR, which launched the 2950 bar/restaurant system in December, has now added completely automatic hotel control and accounting systems to its range, challenging the ADP Hotel Services systems.

The new Modular Lodging System (MLS) automates reservations, guest registration, room management and guest account activities in hotels with up to 500 bedrooms. As the name suggests, the system can be installed in phases, starting with a reservation system (which is already in use at the Heathrow Hotel) and expanding to handle front desk operations.

It can also interface with NCR's existing back office hotel accounting system, which provides city ledger, accounts payable, payroll, general ledger processing and stock control.

Hardware for the system consists of twin processor units, each with 512 Kbytes of memory and integrated disc units with 10 Mbytes of fixed and removable storage, which can accommodate up to 10 VDUs and up to 10 inquiry terminals.

Optional features of MLS allow for direct posting of telephone charges to guests' accounts and for entry of housekeeping information via a guest room telephone.

An enhancement planned for release later this year is the online posting of bar and restaurant charges directly to guests' accounts from the NCR 2160 system.

Cost of the MLS system, including software, is from £50,000, depending on the hardware chosen. On a smaller scale, the NCR 2950 guest accounting system offers front-desk automation for hotels with up to 250 bedrooms for under £7,000.

This system comprises a free-standing terminal with 27 programmable function keys, with a slip, receipt and journal printer, and integrated digital cassette. Features of the 2950 system include inquiry for rooms management, automatic trial balance, currency conversion and automatic posting of accommodation and arrangement charges.

Flat panel market 'will exceed $500m by 1990'

by Andrew Thomas

A NEW report* predicts that the market for flat panel displays for VDUs and televisions will exceed $500 million by the end of the decade.

Four Japanese firms have already demonstrated flat panel pocket televisions, and several of these are expected to be in volume production soon. Flat panel technologies generally use less power than the traditional cathode ray tube, and enable the construction of lighter and more compact devices.

Some companies, however, are working on modified CRTs in which the internal layout has been rearranged to provide a relatively flat profile. Best known among these companies are RCA and Sinclair.

Other firms are developing large screen flat panel televisions to compete directly with projection televisions. The report states that these should be commercially viable by 1985.

There are already flat panel VDUs available, but according to the report most terminals will continue to use the cheaper CRT displays.

Suzanne Grey of International Resource Development, which prepared the report, says that flat panels will be used for portable terminals and executive workstations.

The IRD report predicts that by 1985 15% of all computer terminals will be using flat panel display.

* Flat Panel Display Market, International Resource Development Inc, 30 High St, Norwalk, Conn. $1,285.

40% have eye strain in offices

by Maggie McLening

EYE STRAIN is the most common office ailment in companies using word processors, desk-top terminals and other electronic technology, according to a survey by Alfred Marks Bureau.

The next most common complaints are headaches, migraine and back pain, of which a third of those interviewed complained.

The survey found that 40% of office workers in the 194 companies involved had eye problems. That is a considerable increase on the results of surveys conducted in 1974 and 1977, and consistent with the growing use of VDUs.

Many companies said they were taking action to improve working conditions.

FROST & SULLIVAN
SPRING SEMINAR PROGRAMME 1982

March

10-12	DISTRIBUTED COMPUTERS	LONDON
17-19	OFFICE AUTOMATION & INTEGRATED INFORMATION PROCESSING SUPPORT SYSTEMS	LONDON
24-25	MOTIVATING AND MANAGING COMPUTER PERSONNEL	LONDON
29-31	SOFTWARE PRINCIPLES IN MANAGEMENT	LONDON
30-1 APR	UNDERSTANDING AND USING COMPUTER GRAPHICS	COPENHAGEN

April

5-7	UNDERSTANDING AND USING COMPUTER GRAPHICS	LONDON
28-30	TELEPROCESSING SOFTWARE	LONDON

May

4-6	TELEPROCESSING SOFTWARE	AMSTERDAM
5-7	SELECTING SOFTWARE PACKAGES	LONDON
10-12	SELECTING COMPUTER DATA ENTRY SYSTEMS FOR THE '80s	LONDON
12-14	DATA SECURITY	LONDON
19-21	COMPUTER OPERATIONS MANAGEMENT	LONDON
26-28	SOFTWARE ENGINEERING	LONDON

June

1-3	SOFTWARE ENGINEERING	AMSTERDAM
2-4	ESTIMATING EDP COSTS	LONDON
9-11	LOCAL AREA NETWORKS FOR INDUSTRIAL APPLICATIONS	LONDON

FROST & SULLIVAN LTD

SOFTWARE FILE by Claire Gooding

New contender enters System 38 market

A COMBINED international effort to create applications for IBM's database machine, the System 38, has brought systems house Pactel into an entirely new arena.

Although Pactel's own image is British-to-the-backbone, its parent, the international consultancy group PA, gives it access to multinational resources which may well provide it with the edge in the System 38 market.

There is now a rush to bring out applications for the System 38, which has been slow to fulfil expectations, mostly because only revamped System 34 packages were available. The machine was hailed as a revolutionary development for IBM, because it was designed around database concepts, with software the top priority.

The high-level language RPG III, along with inspired systems software, gave the programmer a power house of development tools but ironically IBM had to look to outside software suppliers prepared to write applications from scratch for such an environment.

Pactel became interested because it spotted that the System 38, although a product of IBM's General Systems Division, could provide the kind of capacity and performance which blurred the distinction between mini and mainframe.

"We noticed that corporate subsidiaries and large multinationals were buying 38s," said Peter Andell, senior consultant at Pactel in charge of the System 38 project. "It confirmed that it would be a success in the kind of company we like working for, so we went ahead and installed our own."

Pactel's push into unfamiliar territory was helped by the fact that its parent PA had bought up several companies across Europe whose small systems experience was to provide much of the input.

One such, Errpege of Sweden, already had a Sales Order Processing system called Algo, and others, Tietolinki of Finland and AR Data of Norway, also had fingers in the System 38 pie.

In order to make the most of this international team Pactel formed a multinational and multi-linguistic consulting team, which draws on the various skills, such as accounting. The teams meet from time to time in various parts of Europe to hammer out a central specification.

The result, eventually, is a "core" package which can be tuned to the needs of any particular country.

In the UK Pactel has a small but enthusiastic team, working on its own System 38. "You can make this machine do anything you like," said systems analyst Susan Galea, who has been involved in building high-level general purpose tools to make things easier for both programmers and end users.

The team is working on three packages, the Algo Sales Order Processing System from Sweden, the Pamacs General Ledger and the Pamis Maintenance Information System.

ANDELL . . . "It will be a success in the company we like working for."

Desktop DBMS package enhanced

by Maggie McLening

AN enhanced version of the best-selling Profile II+ database management package for the Radio Shack TRS-80 Model III desktop computer has been released by the small Computer Company, Inc.

"Profile III+ allows non-programmers to create sophisticated applications – such as a complete personnel search system – in a fraction of the time it would take programmers using conventional languages," according to Howard Wolowitz, president of the sCC.

It also interfaces with the VisiCalc financial modelling program and the forthcoming Radio Shack SuperSCRIPSIT word processing program to give an integrated set of management information tools.

Up to five pre-defined report formats can be created and stored using Profile III+, and field values and totals can be calculated and inserted automatically.

Unix rewrite undercuts the licensed version

US systems house Microware is out to capture part of the expanding UK micro market with a system called OS9, a cheap version of the Unix operating system.

Unix is the portable time sharing system billed to become the 16-bit standard of the Eighties (rather as Digital Research's CP/M dominated the eight-bit market). But the licence fee asked by its owner Western Electric has given rise to several rewrites of the system from scratch, which can then be sold at lower prices than the licensed versions such as Microsoft's Xenix.

Ken Kaplan, president of Microware, sees OS9 as a product with few limitations, and able to cope with applications not usually associated with Unix.

"It's been rewritten from scratch with versatility and portability in mind, so that it can support applications other than traditional time sharing and text processing. We are going for OEMs and industrial organisations."

Microware has provided full real time facilities and a complete kit likely to appeal to OEMs who are after a Unix lookalike.

These include Structured Basic, written by Microware to Ansi standard and dubbed BASIC09, and a Pascal also written in-house. OS9 uses a version of the Unix language C, from Unix Version vii, and the micro Cobol compiler CIS Cobol from Micro Focus.

According to Kaplan, the main advantages offered by the support of languages like C and CIS Cobol is that they offer a bridge between the 68000, Motorola's long awaited next generation, and the 6809 chip.

"The 68000 fits into a different slot in the price/performance scale – to be able to offer that sort of performance and the availability of development software which is portable is unique. It means that applications can be moved between the two."

Microware is trying to get the name and reputation of OS9 established in the UK, and is already looking for OEM agreements. One UK company, Positron, has chosen the system for its 9000 machine, due to go into production this month.

The entire system is written in 6809 assembly code. It may therefore have its market more clearly defined than some other Unix lookalikes whose market is threatened by the release of Western Electric's Unix update System II at very low cost for binary licences.

Search system points job hunters at right ad

by Maggie McLening

AN original idea in job recruitment is being pioneered by newly formed Datasearch Services. Instead of recruiting on behalf of employers, it circulates details of advertisements which have appeared in the Press to job seekers.

"The concept is not to find jobs in the same sense as a job centre, but to point people in the direction of publications advertising suitable jobs," explained Oliver London, a director of Specialist Software, the firm of consultants that developed the software for Datasearch.

One hundred and sixty local and national publications are scanned every day. About 1,000 descriptions of positions advertised are processed per day, but the system has the capacity to cope with over 2,000.

Each subscriber is sent a daily sheet containing details of suitable vacancies and how to apply.

"It is rumoured that there was a system like this in the late '50s or early '60s, but certainly nothing similar in the last 10 years, because the price to technology performance ratio has not been right," said Tim Deakin, consultant to Datasearch.

Hardware used for the system is the 16-bit Alpha Micro 1051 Phoenix, supplied by Alpha Microsystems (UK), with 384 Kbytes of memory, linked up with eight VDUs and four line printers.

"We chose this system because the main thing is performance, and we can match people very fast," said London. "The response time on up to 32,000 items is a third of a second."

The project has taken almost four years to develop and has cost about £250,000. Subscription to Datasearch is £26 per month, but the cost is halved if the subscriber is still unsuccessful in finding a job after six months.

Every busy director deserves a personal assistant.

"But I've already got one... my secretary," you may be saying.

True, but does she have the time to give you all the help you need?

Many secretaries are so bogged down with day-to-day correspondence, reports, minutes and so on they just don't have the time to be personal assistants as well.

We don't think a person in your position should have to worry about these problems.

So we've come up with the answer.

The Bitsy Secretaire.

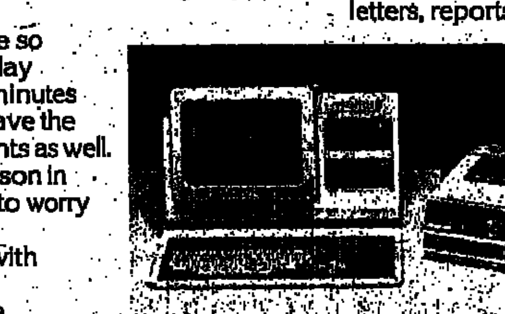
This is a specially developed word processor which can speed up all routine 'chores' quite dramatically, so your secretary will have plenty of time to give you all the help you need.

With a minimum of training she can produce letters, reports, minutes with much less effort.

And like our other systems, we've designed the Bitsy Secretaire with the secretary in mind.

It's simple to learn, has easy control instructions, even a special screen with brightness control that tilts so your secretary can adjust it to suit herself.

"So don't let your work get on top of you. The Bitsy Secretaire will give your secretary the time to be your personal assistant. After all... you deserve a helping hand.



PLEASE SEND ME FURTHER DETAILS ON THE BITSY SECRETAIRE.

NAME .... POSITION .... COMPANY ....

TYPE OF BUSINESS .... ADDRESS ....

TEL CW-4/2/82

Send to: Office and Electronic Machines Ltd. 140-154 Borough High Street, London SE1 1LH, Tel: 01-407 3191.

ADLER & IMPERIAL INFORMATION SYSTEMS

A GROUP OF COMPANIES

UK in first with micro-based flight simulator

A BRITISH company – Link-Miles of Lancing in Sussex – claims to lead the world with aircraft flight simulators, and is the first to bring out a simulator that replaces mainframe computers with a distributed system of microprocessors.

"To the best of our knowledge, we are the only manufacturer which has developed an architecture, applied it, and delivered it to a customer where it is in use," says the company's managing director Jack Davis.

He sees the world market for flight simulators driven by a need for greater realism and fidelity of simulation, lower acquisition costs and lower life-time costs.

He estimates that it will be worth $1,250 million by 1985, and that increasingly complex aircraft and weapons systems will speed the move away from mainframes and minicomputers towards distributed microprocessor systems.

The first fruits of this trend are a simulator for the BAe Hawk jet trainer aircraft developed for the Finnish Air Force and in use since October last year, and a vision system for other flight simulators, three of which have just been ordered by USAir. This $3 million order is the first for the Image II system.

The Hawk simulator uses Intel's 8086 16-bit microprocessor. There are five in the cockpit platform of the simulator, looking after flight performance characteristics, radio and navigation equipment, engine functions, and auxiliary systems such as fuel, electrics and hydraulics. A sixth provides the instructor with the necessary feedback and the control of simulator functions.

So far the distributed simulator system can only be applied to light aircraft, not wide-bodied jets or complex military aircraft with advanced weapons systems. However, the system is expandable up to about 14 processors, and with faster versions of the 8086 and more powerful processors like the iAPX 286 coming along, Link-Miles is sure that its architecture points the way ahead.

Link-Miles' Geere, Davis and marketing director Peter Astley, who claim that their company is a world-leader.

The Image II vision system similarly uses several 8086s to provide a through-the-window scene giving realism and visual clues for pilot training. The display typically gives a view of particular airfields – showing landing lights, nearby towns and roads, hazards on the runways such as ice or other aircraft – in various weather conditions.

So far, the display used is only for dusk or night scenes, with a great emphasis on light points. A daylight system, Image III, will be introduced in about a year.

Traditionally, a visual system attached to flight simulators is run by a dedicated minicomputer, says technical development manager Desmond Geere. To expand it, a new mini would be needed.

With the Image system, all that is needed is extra microprocessor boards, with changes to PROMs to give different functions.

In a typical system, there would be 8086s to control the overall system, and deal with particular aspects of the airfield scene such as surfaces, light points and moving targets.

For both the Hawk simulator and the Image II system, the distributed microprocessor approach has had a good effect on software and systems testing. Costs for these were significantly lower, according to Davis.

Eight bits for price of four

PRICE competition at the low end of the single chip microcomputer market is intense, with 8-bit devices taking the bulk of price-sensitive high volume consumer products such as games, telephones and home appliance controllers.

Now Intel has produced an eight-bit micro, the 8020H, with 1 Kbyte of onchip ROM for $2 per device (in shipments of more than 10,000 units), which it claims is one-third the price of the cheapest eight-bit microcomputer available, and compares favourably with a typical price of $1.50 for four-bit chips in similar quantities. Customer shipments are due early this year.

"The 8020H is a cost-competitive alternative for design engineers presently using four-bit devices in high volume products," says Joe Baranowski, Intel's marketing manager for microcontroller operation. "Both for new products and redesigned products, many additional features can be added using the 8020H, with very little extra expense."

The chip is based on the architecture of the MCS-48 family, and uses a subset of the 8048's instructions.

System has 50% more throughput

INCREASED throughput by using a faster processor, greater disc capacity and powerful direct input/output capabilities are offered on Transdata's Superspeed microcomputer, the Cx502-S.

By replacing the Z80A main processor in the twin-processor Cx502 with a 6 MHz Z80B, a 50% increase in throughput has been achieved.

Coupled with a 10 Kbyte cache buffer in the Z80A-based floppy disc controller, it gives better performance for up to three users than is achieved by some Winchester-based micros.

Technical director of the Havant-based company, Ivor Smith, estimates that disc performance is certainly equivalent to many 5¼ inch Winchesters, and will allow a 20 Kbyte program to be loaded from disc in about one second.

This will give reduced response times, and he sees applications in areas like word processing, where disc performance is important but the large capacity of the Winchesters is not needed.

"Of all the prime competition (in the UK) we are the only one using the Z80B," claims Smith. He adds that the architecture of the Cx500 series, with multiple processors communicating along a bus, has enabled Transdata always to use fast memories, so there was no problem in matching the speed of the memory chips with the new processor.

The company expects to attract interest from end users and OEM system builders for the Superspeed machine, which joins a compatible range of computers with upgrade potential from single-user floppy systems to multi-user hard disc systems.

Guidance for managers

GREATER Manchester is to gain a training centre for businessmen wanting to find out what a microcomputer could do for them – thanks to Oldham systems house MAP Computer Systems, which is extending its activities into training.

Echoing recent reports of potential users' troubles with salesmen, MAP's managing director, Glyn Rigby, says prospective buyers are desperate for experience as well as information and can be very suspicious of computer sales staff.

There will be no formal lecturing, but guidance will be readily available.

Managers and accountants will see various micros in action.

Motorola divides franchises

WITH the 16-bit micro market in Europe looking to Motorola like one dominated by board sales rather than components, the company has separated its systems and components franchises, appointing Thame Components as its first distributor solely for systems.

Thame, a subsidiary of Memec, will concentrate on the Exormacs development systems for the 16-bit 68000 processor and Versabus 16-bit boards, though will also sell Motorola's eight-bit systems and boards.

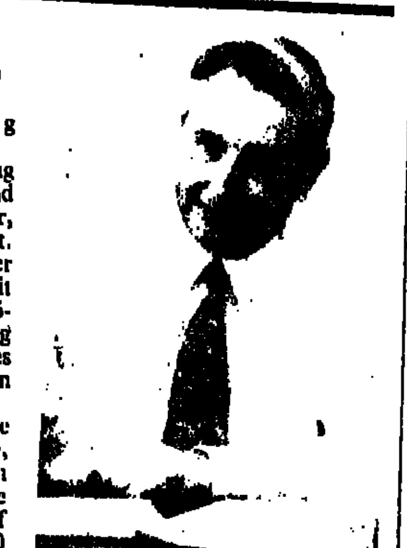
The Motorola products join development systems from AMD, Mostek and Synertek, giving Thame an unrivalled range, according to Memec chairman Dick Skipworth. He expects to sell £330,000 worth of Motorola development systems this year.

Thame is the fifth distributor to handle Motorola's system products: four of the eight components distributors also handle them. The splitting of the franchises reflects the changing emphasis Motorola sees in the eight-bit and 16-bit markets. For eight bits, systems are sold to support components; for 16 bits, the components support the system sales.

"Board sales will be the key market for 16 bits – in the UK – over the next two years," says Motorola UK general manager Mike Alderson, adding that the only large volume market will be personal computers. "You don't need 16 bits in washing machines."

European designs incorporating 16-bit chips are lagging behind those in the US by about a year, and not many use 68000s yet. Motorola is gaining ground over the Z8000 from Zilog, which it feels is its competition for new 16-bit business, but both have a long way to go to catch up with the likes of Intel and Texas Instruments in numbers of chips shipped.

Motorola has been shipping the 68000 in quantity for some time, and according to US research firm Dataquest 36,000 units were shipped in the third quarter of 1981, compared with 14,000 Z8000s from Zilog in the same period.


ALDERSON . . . "Board sales will be the key market for 16 bits."

Slump in semiconductor makers hits capital investment plans

THE worldwide recession in the electronics industry and the resulting depression in earnings of semiconductor manufacturing companies has had its effect on the sale of capital equipment.

According to VLSI Research's capital equipment outlook service, 1980's record shipment level of $1,860 million fell to $1,560 million in 1981, and is expected to show only a modest increase for 1982.

By 1985, however, it is forecast to reach $4,470 million, driven by the demand for increasingly complex chips and automated manufacturing techniques.

The need for capital to incorporate technological advances puts strain on IC manufacturers, leading to a large number of acquisitions of semiconductor houses by large companies. Local European firms found it difficult to remain competitive with US and Japanese companies operating internationally, the report notes.

Capital investment, including building and land, rose from about 8% of revenues in 1965 to 15% by 1980. This trend is expected to continue, and it is estimated that in 1985 capital expenditure will reach 25% of semiconductor revenues, despite the 1981 downturn.

VLSI Research's analysis shows that investment in capital equipment alone rose from 3.2% in 1965 to 9.9% in 1981 and will climb to 11% in 1985.

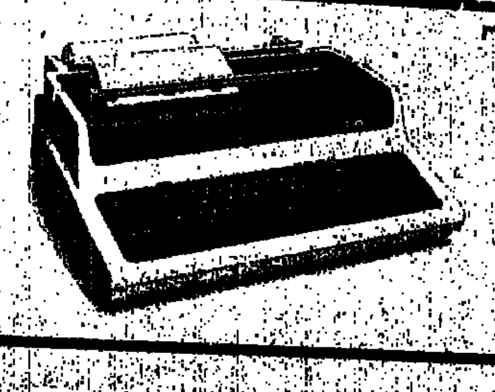
The main area of the equipment market is for wafer processing, followed by testing and assembly. Despite the general decline, a few sectors increased sales in 1981 over 1980.

Probing and handling equipment spending went up, with manufacturers trying to eliminate defective devices as early as possible in the manufacturing process, and shipments of stepping aligners (one of the newer types of microlithographic equipment) increased.

The European Community, concerned at being left behind in the new technology race, recently announced support worth £24 million in 1982 for development projects with European firms producing capital equipment for semiconductor design and manufacture.

One hopeful aspect of the VLSI Research report is its identification of several European companies already making an impression on the US-dominated scene.

The TOTAL Answer HAMILTON
No1
for rent or sale
of data communications equipment
Hamilton Rentals Limited
Hamilton House, North Circular Road, London NW10 7UB
London 01-961 6777
Birmingham 021-236 3561
Manchester 061-848 8336/8434
Central Scotland 0501 43182
Aberdeen 0224-25301


The rental people who sell

SALE		MONTHLY RENTAL INC. MAINTENANCE
£895	DEC VT100	£51
£775	DEC VT101	£45
£1818	HP2621P	£87
£795	NEWBURY 8009	£46
£559	VOLKER CRAIG 404	£30
£1225	MELLORDATA DT80/1-L(15")	£59

SALE		MONTHLY RENTAL INC. MAINTENANCE
£530	LA34 DECWRITER	£35
£1395	LA120 DECWRITER RA	£76
£1195	TEXAS 745 PORTABLE	£70
£1206	TALLY 1612 RO	£63
£795	TELETYPE 43	£47
£1995	DIABLO 1650 RO	£94

Rentals from 1 day to 5 years
Quoted prices are for 2 year rentals

MBS
MBS Rentals, 119/120 High Street, Eton, Berks. SL4 6AN. Telephone: Windsor (07535) 55211 Telex: 849945
also at Liverpool:
National Westminster Bank Buildings, 89 Brighton Street, Wallasey, Merseyside.
Telephone: Liverpool 051-630 6060

City gloom over rising Star

HALF-WAY results at East London-based Star Computer Group have not done enough to lighten City gloom about the way the computer darlings of last year's Unlisted Securities Market are performing.

The company, led by entrepreneurs Jack Schumann and David Blechner, has pushed turnover up 45% compared with the same period last year, but that did not meet the excessive expectations of City investors.

Sales in the first half of 1980/81 were £1.1 million, compared with £1.6 million for the first half of 1981/82.

Profits for the half were 12% up at £201,000 compared with £179,000.

In the middle of a recession this kind of result might be thought little short of amazing, particularly when the company has had the cost of its supplies, most of which come from America, raised 30% on the back of the rising dollar.

One reason for the high expectations of some City investors was that the price of the stock was pushed to a point where it was trading at 28 times the likely annual dividend earnings.

Star, according to Schumann, has been investing heavily in new product. The company is adding new word processor, solicitor and share registration packages to complement the extensive range of accounting packages supplied by the company.

Schumann and Blechner are confident that those packages will show significant benefits in the current financial year. And the company traditionally gathers in most of its profits in the second half.

Last year Star finished the year with a final profit of £740,000, which was one of the reasons City people were so keen on the shares.

At last – good news from Northern Ireland

WITH so much bad news coming out of Northern Ireland it's good to be able to report that in the computer industry at least things are not so gloomy.

Belfast-based Northern Ireland Business Systems, NIBS, one of the Province's better-known systems houses, has recently become the Data General distributor there and reckons to double its existing support staff from 11 to 22 over the next year.

The company was set up three years ago by ex-Burroughs salesman Jim Beattie and turnover has risen to £250,000. Start-up funds came from Beattie, his other directors, and a bank loan from Allied Irish Bank.

Initially the company provided back-up and software support service to Burroughs installations, and will continue to do so while it uses the Data General equipment to extend coverage of the market.

According to Beattie, NIBS aims to offer a locally-provided, locally-supported solution to the small businessman in Northern Ireland.

Traditionally the Ulster market has been serviced by companies whose main base was in England or even beyond. Because the market in Northern Ireland is not large only a few of the big companies like IBM and Burroughs have fully supported and structured organisations there.

ICL, formerly a big presence, never returned in full strength after its Belfast premises were bombed early in the current troubles.

But Beattie's systems director, Will McKee, reckons that this gives a company like NIBS a real opportunity to fill the gap. He says the market is about 100 systems a year. This puts a value on the whole market of about £20 million.

Turnover at NIBS has doubled every year since the company started, says Beattie, and it is expected that this will continue.

Earlier this year the company took its development plan to the local enterprise development unit and McKee says that NIBS is likely to receive grant support.

Local enterprise development units in Ulster are small development authorities which make grants based on jobs created.

At the bottom end of the market place, the company aims to provide the small business user with Apple machines running the Cobol packages developed by NIBS.

Beattie says that the micro end of the market in Northern Ireland is worth about £5 million, but he is worried about overkill. "Many firms in Northern Ireland trying to take advantage of the new technology are falling into the microcomputer trap and placing jobs at risk," he says.

He adds that too many products were being offered in the minicomputer boom without training and other support services.

"This results in many companies in the Province buying equipment without adequate preparation or knowledge and having to sort out the consequent problems . . . with possible job losses."

McKee says NIBS will soon announce a new super micro to fill the gap between Apple III and the smaller DG minis.

BEATTIE . . . Worried about overkill.

Gestetner profits down £10m

by Boris Sedacca

ALREADY reeling from the unsuccessful bid to acquire the ailing Nexos Group, Gestetner's profits have been slashed by heavy losses in its European operations.

The duplicator company, which has been looking for a suitable acquisition for some time now to enter new markets in office automation, has announced a drastic drop in pre-tax profits from £16 million last year to £6.2 million for its October financial year-end.

Turnover increased by £17.6 million over the same period to £298 million.

Dividend has been cut from 5.25p to 2.625p, and the price of Gestetner shares on the Stock Exchange dropped by 6p to 50p when results were announced.

A question-mark now hangs over Gestetner's takeover ambitions. The Nexos deal fell through partly because Gestetner did not want to have the 2200 manufactured and supplied by Logica, but wanted to build it itself.

ICL, under its new marketing-oriented management, was prepared to leave the manufacturing in Logica's hands. However, the Gestetner brothers have declared that they are optimistic about their prospects in 1982.

Meanwhile, Gestetner has announced that one of the companies in which it has a 20% holding is restructuring itself and its subsidiaries into three separate publicly quoted companies in the US.

Scope, a Virginia-based electronic equipment manufacturer, will distribute the shares in its two largest subsidiaries, National Controls and Repco, to its shareholders. A wholly-owned Scope subsidiary, WC Dillon and Company, will be transferred to National Controls.

Confidence in ICL

THERE was more than a glimmer of satisfaction at ICL this week when chairman Christopher Laidlaw announced that 95% of the recent rights issue of shares had been taken up by existing shareholders.

This amounts to a very substantial vote of confidence in the current management and its policies by shareholders which include some of the largest City investing institutions.

Amdahl up $11 million

AMDAHL continues to make substantial progress with full 1981 profits $11.6 million up on the 1980 figure of $15.2 million.

The 1981 profit was $26.8 million on revenues up $48.4 million at $442.8 million.

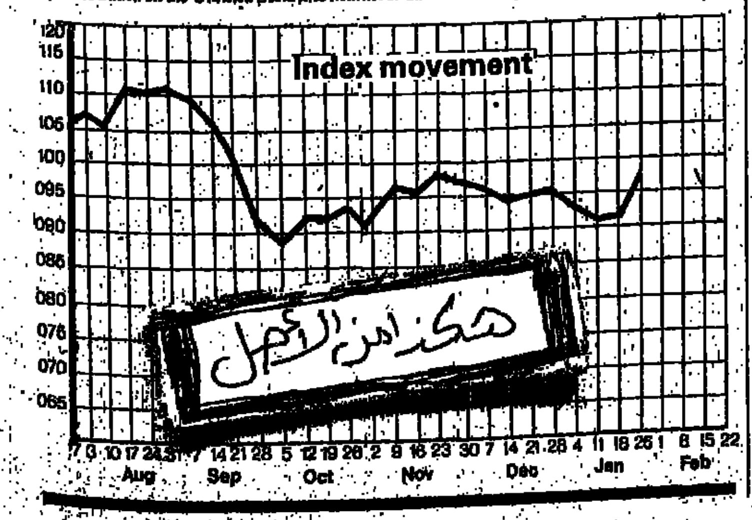
Like all American companies Amdahl suffered from the appreciating dollar, but the company seems to have weathered the currency storms better than most.

CW SHARES TABLE

Date 28/1/82 Index: 97.86 Change +8.18

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Pence Price	Pence C'nge	$ 1982 High	$ 1982 Low	US Stock	$ Price	$ C'nge
178	161	A Comp Tech (25p)	178	+27	20¾	18½	Apple Inc	20	−¾
165	150	BOC Int (25p)	165	+15	25¾	23¼	Auto Data Pro	23¼	−2
23	21½	B Gov Kent (25p)	21½	−½	33½	31	Burroughs	31	−1⅜
103	101	Chubb (20p)	103	+2	48¾	41½	Commodore	48¾	+7¼
58	48	Cole (R H) (25p)	58	+3	11	10	Comp Auto	11	+¼
230	220	Comp & Sys (20p)	220	−	15	13½	Comp Sciences	14¼	−⅜
730	668	De La Rue (25p)	730	+32	16½	14¾	Comshare	14¾	−⅜
245	235	Extel (25p)	245	+9	34¼	31½	Control Data	33¼	+1⅜
665	625	Ferranti (50p)	665	+10	38¼	33¼	Cray Research	38¼	+½
637	602	GEC (25p)	637	+8	52½	50½	Data General	51	+½
45	33	ICL (25p)	45	+6	49½	45½	Datapoint	49⅛	+1
45	41	Kalamazoo (10p)	45	+4	20½	18½	Dataproducts	20¼	+½
260	228	Kode Int (25p)	250	+20	86½	80¾	Digital Equip	85½	+3
220	215	Mamec (10p)	218	+3	23¾	22	Elec Data Sys	23	+¼
118	110	Muirhead (25p)	118	−	6½	6	Gen Automation	6	−¼
278	262	N'mkt ('81) ($0.05)	266	+4	38¾	32½	Harris	32½	−1⅜
£35½	£31½	Norsk Data	£33½	−£2	40¼	39	Hewlett-Packard	40¼	+1¼
290	285	Office & Elect (25p)	285	−5	70	65	Honeywell	70	+2⅛
477	445	Phillips Lamp (fl10)	477	+20	26½	20¾	Intel	26½	+3½
365	348	Plessey (50p)	365	+8	62¾	57	IBM	62¾	+1⅛
95	88	Quest Auto (10p)	95	+7	66	60¾	Litton Ind	63¾	+1½
430	385	Racal Elect (25p)	385	−3	13¾	12¾	MDS (Mohawk D)	13¾	+1
198	171	Rediffusion (25p)	196	+17	22	21¼	MSA (Mngmnt Sci)	22	+⅜
458	431	Thorn-EMI (25p)	446	+3	10½	10	Mngmnt Assist	10¼	+¼
90	82	Utd C&T (50p)	82	−8	8¾	8¼	Modular	8¼	−
					65¾	57	Motorola	65¾	+2¾
		OTHER MARKETS*			19¼	15¼	National Semi	19¼	+2½
					43	40½	NCR	43	+2¼
95	90	Bus Comp (10p)	92	−	26½	23¾	Perkin-Elmer	26½	+2⅛
557	450	Comp Serv (£1)	450	−107	23¾	21¾	Prime	23¾	+⅝
90	75	Consult (C&P) (10p)	90	+7	35½	34½	Raytheon	34½	−¼
135½	131	HMW (£1)	135½	+2½	25½	24½	Signal	25½	+½
85	83	Rolfe & Nolan (10p)	83	−	34	31¼	Sperry Comp	32¼	+¼
105	78	ScanData (10p)	85	+7	34½	30½	Storage Tech	30½	−
183	180	Star Comp (10p)	183	+3	27½	25¼	Tandem	26¼	−1¼
105	105	Trident Comp (10p)	105	−	34¾	32¼	Tandy	33½	+½
95	88	Zygal Dyn (5p)	95	+5	79	70¾	Texas Inst	79	+4
$		US Stocks	$		27¼	18½	Tymshare	18½	−1½
					36¾	31¼	Wang Lab B	36¾	+1⅜
29½	26¼	Amdahl	28¼	−¼	9	8	Wyly	8	−¼

Table shows the closing prices of The London Stock Exchange on Thursday and in America on Wednesday. The share index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
** Shares traded on the Unlisted Securities Market or under Rule 163(2)(a).*



STODDART . . . His Electra House group led the initiative to create Western Scientific.

Shot in arm for UK high technology

AN active week in UK small company and computer technology financing has been enlivened by the activities of Western Scientific. The company, which is both a holding company and an investment vehicle for a group of City institutions, has just bought the BOC aviation instrument subsidiary at Hadlow and the industrial weighing business of Fisher Controls.

Western Scientific was set up in 1980 to concentrate on technology transfer from the US to Europe – so that the advanced technology being produced in the US would be bought on the basis of manufacturing licences and built in Europe, rather than being built in America and sold in Europe.

According to Richard Thompson, Western Scientific's chairman, the idea is not to have one-way traffic in technology.

Western Scientific's first purchase was the ailing Negretti and Zambra group, based in Aylesbury, Bucks. Apart from having the manufacturing capability to exploit the licences and contracts provided by the US directors of Western Scientific, Negretti also has a useful portfolio of patents and in-house developments of its own, some of which may be exploited in the US.

Negretti and Zambra had been long established in instrumentation and had begun to invest in microchips when a decline in traditional markets for the company's products began to take their toll.

In December, 1979, the company – which had a substantial NBB shareholding – sold off all the old mechanical businesses of the Negretti group.

The rump of the company refocused on instrumentation and electronics, and now manufactures microprocessor-based instruments. The company introduced its first microprocessor in May 1976, a joint design with the Warren Spring laboratory.

This early microprocessor was put into a process control system called NP MPC 80 which was driven by the company's own high-level language, Seztrol. This is still claimed to be the first all-British programmable micro-based process control system.

The Negretti Group was finally bought out in late 1980 by Western Scientific. The initiative to set up Western Scientific and the concept which the directors are implementing at Negretti and Zambra came from Mike Stoddart's Electra Investment group.

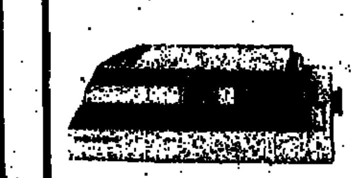
The EPSON printer family

MX 80

MX 80
- 80 cps Matrix Printer
- 9 x 9 Matrix, True Descenders
- 4 Print Sizes, 40/66/80/132 Columns
- Full Forms Handling, 64 Graphic Characters

MX 80 F/T
- As MX 80 With 3 Way Paper Handling, ie. Fanfold, Roll and Cutsheet

MX 80/L
- As MX 80 With Extensive Graphics Facilities


MX 100

MX 100
- Full width 80 cps, 132 column printer
- Adjustable tractor feed
- Sophisticated Forms Handling

Standard Interface, Centronics 8 bit parallel.
Optional RS232, Apple, Pet, Sharp, IEEE488, TRS 80.

RING BELPER (077382) 6811 Telex 377879
FOR FURTHER DETAILS, LITERATURE, INSTANT PRICE QUOTATIONS

MIDLECTRON LIMITED,
MIDLECTRON HOUSE, NOTTINGHAM ROAD, BELPER, DERBY. DE5 1JQ.

SYSTEMS THOUGHTS

Make it your 1982 resolution to get up-to-date

Anne Leeming works in the Centre for Business Systems Analysis at City University.

AT this time of year we go through the motions of making New Year resolutions. One which would please many pockets as well as consciences is to make certain that all systems documentation is thoroughly up-to-date.

This is particularly appropriate now as, for many organisations, the auditors will either be already installed with the "books" or will be arriving shortly.

Perhaps the aspect of auditing that causes most discussion is the size of the fee. The auditors are primarily employed by the business so that it can fulfill its legal obligations to its shareholders. However, many businesses also expect to get sound advice on the quality of their financial systems from the audit. They will expect an assessment of the controls within their systems.

The auditors are concerned that their clients get maximum value for the fee that they, the clients, have agreed to pay. Naturally, the auditors want to minimise their costs while giving the best service and advice they can. Imagine everybody's feelings then, when things start to go wrong and it is all due to poor systems documentation.

A typical situation occurs when the auditors wish to look at the records in a file of transactions. Suppose they wish to inspect the payroll file; they may be looking for employees who earn exceptionally large amounts or who may be getting paid twice, either by accident or design.

They will have written an interrogation program specifically for use with this system. The program will be used every year and needs maintaining when changes are made to the clients' system. So let us suppose that, since the auditors were last on-site, one or two small alterations to the file layout have been made.

The sort of thing that might occur is a change in the size of a field. The effect of such an alteration can be to change the absolute positions of many fields in the record layout. A change in the way of calculating sick pay may have meant a change in a stored field size. It may have been necessary to insert a new field in the record. The net effect is that the current file descriptions and record layouts are not the same as those that the auditors have in their systems files. Consequently they will not have known that they need to change their interrogation program.

Normally auditors build their systems files when they first meet a system. To make a fresh system file annually would be not only boring, but a waste of time and money.

When the auditors arrive for the audit, one of the things they will ask is, what changes have taken place since their last visit? Naturally the systems analyst will intend to tell the auditors exactly what changes have been made to the files. Theoretically it will all be written up in the systems documentation and a copy of the changes will also be ready to show to the auditors.

However, most of us are human and are known occasionally to skip the less exciting parts of our work. So it is understandable when the auditor stands there, with a large pile of computer paper and a groan escaping from his or her lips.

What a pity that the analyst responsible for maintaining the payroll system celebrated a birthday just as the deadline for completion of the project approached! Needless to add, the work that did not get completed was the recording of the small changes to the systems documentation.

So let our New Year resolution be to pay particular attention to the completion of all aspects of systems documentation, especially alterations. These are especially important as the effect of missing them is out of all proportion to their size. Remembering to document them will save a lot of boring and tedious work in a hurry when problems arise.

Anne Leeming

The world leader in colour graphics has moved into its new UK offices!

Ramtek (UK) is pleased to announce its new offices that extend the support and services that we offer to our clients. Selling high technology products demands not only the right people but also the right facilities.

From January 1st 1982, our sales and support staff at the new address will provide information and arrange demonstrations of some of the finest graphics products in the business.

Products of particular interest are the high-performance 9450 Colorgraphics & Imaging System and low-cost 6211 Colorgraphics Terminal. Both offer an impressive range of features and benefits at very competitive prices. There is even a special introductory price offer on the 6211 until March 25th 1982.

These plus the rest of Ramtek's range of terminals, systems, monitors and colour hard-copy devices will be supported from the new offices.

Ramtek

Ramtek (UK) Ltd.
Times House
Station Approach
Ruislip
Middx. HA4 HA4
Tel: 08956 - 76211/2

FOCUS

Locking in the skilled DP staff—with golden handcuffs

ORGANISERS of a Frost & Sullivan seminar, Motivating and Managing Computer Personnel, suggest widespread worker dissatisfaction at all levels in the computer industry coupled with an expanding backlog of work and decreasing productivity. Whether the lack of productivity is a direct result of storage space given the mounting backlog of work or the widespread worker unrest is not made clear.

For an industry noted for career opportunities and a high level of mobility, the claim that DP teams are demotivated seems hard to justify. Certainly most ops personnel appear fully motivated and integrated into their organisations.

The enlightened installation does not operate a promotion ladder with ops on the lower rungs, analysts at the top and programmers perched midway. Typically experienced operators are recognised with worthwhile salary levels which could be superior to those of their programming colleagues.

This acceptance of DP pay scales is somewhat overdue, but welcome. Not all DP operators aspire to life as a programmer unless the incentive is better pay. Similarly, programmers should not have to aim for a position as an analyst in order to attract improved remuneration.

Good DP personnel often find their own niche and are happy to remain doing what they do best and best enjoy.

If there is any disquiet in the installation, then in all probability it will be the DPM who is disgruntled. Promotion stakes are often limited or blocked by company structures. Promotion can only be gained by changing to a job with increased responsibilities, changing career course to become a communication or software consultant, or joining a dynamic sales organisation.

However, if the DP industry experts are correct, pay levels figure low in motivation rankings. Professor Couger, a computer scientist, has compiled a list of five critical factors which he believes best motivate the DP professional. These are: Skill variety, task significance, task identification, task autonomy, and feedback.

DP professionals, it seems, follow the line that the more varied the task, the better the job satisfaction. Professor Couger, a speaker at the London seminar, has an impressive track record which includes addressing more than 90 international professional society meetings, writing 13 books, a consultant to DEC and the winner of a US "man of the year" contest. Hopefully he will find time to study a report from the US which introduces a new industry buzz-term, "golden handcuffs".

This covers the introduction of comprehensive fringe benefit packages by companies in order to lock-in their skilled DP staff. Apart from impressive salary increases, DP professionals are being offered bonus incentives and profit appreciation rights. Companies are increasingly offering performance units based on strategic results in order to compensate loyal workers who would otherwise be on the move.

In the UK, it is the employer who most often wears the handcuffs. Company pay policies reflect national economic trends and government inspired guidelines and extend to the DP operation, while stock option schemes are not exactly encouraged by the tax authorities.

Golden handcuffs are, therefore, more likely to reflect time-off allowances for the installation's darts team, an early shutdown on Friday nights or an individual car parking space.

Motivating the average DPM, however, is difficult. He is usually far too busy motivating the rest of the DP team.

Alan Simpson

10 YEARS AGO

From Computer Weekly of February 3, 1972 . . .

NCR and Control Data Corp have entered into an agreement which will produce immediate economies through rationalisation of peripherals manufacture. Also envisaged is the development of an integrated line of computers . . . Lord Avebury, the former Liberal MP Eric Lubbock, is to be the new chairman of Digico . . . In what is hoped will be the solution to the cash flow problems of Canadian Computer Ltd, which in 1971 put the Canadian company more than £4 million in the red, ICL has signed a £6 million pact under which it will purchase more than 100 Keyedit systems and take over UK marketing.

DOWNTIME

Promised land—where energy grows on trees

THERE is a jaded joke whispering round the synagogues of Israel which runs something like this: "If Moses had turned left rather than right when he came to the Red Sea, we'd have had all the oil and they'd have had all these bloody oranges."

The joke falls flat in the face of two recent pieces of high technology news concerning oranges and oil.

The first tells of a little Japanese fellow who has succeeded in running his car on oil extracted from the peel of oranges (actually it was tangerines, but forgive Chad his licence).

Since it takes 10,000 of the tangerine skins to produce a gallon of the precious liquid, it is not yet an economic proposition, but at least it does grow on trees.

The second news I have is a grand example of field testing — or is it system testing, I can never quite remember? Anyway it's all about a ton or two of oranges which a subsidiary of British Petroleum hopes to toss into the Firth of Forth next spring in order to test a computer system which predicts the behaviour of oil slicks.

Apparently oranges travel on water rather like crude oil, giving us yet another connection. So Israel should be glad of all its bloody oranges.

They taste good and are a mine of oil.

Music in the air

TALKING of energy, I learn that the sun is a great musical instrument ringing like a gong, singing its song to listening acoustic astronomers as the energy produced in its interior rises to the surface in the form of enormous low-pitch sound waves. Or so says an astronomer in the US who, I hasten to add, uses his eyes as ears.

Sound is not carried by the near vacuum of space, and the sun's music is received as radio waves played on to a graph.

There are, though, attempts afoot to transpose the observed oscillations back into music.

Chad is no stranger to unusual instruments. He once used the naked face of a frozen lake as a giant drum skin which he beat with a tree branch to delight an audience of homeless water fowl.

Fast food sample

FOLLOWING my recent exposure of the computerised calorie counter, I can now tell you of the total food burger, designed by a French chef, who took a degree in food science as a step toward this Utopian ideal.

The burger weighs about five ounces and is said to contain all the protein, minerals, vitamins, carbohydrate and fibre necessary to keep a person on two feet.

"Everyone should have one for breakfast," he says. "Then they can do what they like."

I have sampled the Epicurean delight of this burger and it is indeed delicious, but sadly it left a yawning cavity in my stomach.

They make good starters, but are hardly the toast of a good dinner party.

Nothing serious

REACTION of a lady acquaintance (heavily into social responsibility, disarmament, saving mankind etc) to my telling her that this is Information Technology Year: "You mean it's not the Year of the Disabled or anything important?"

Ho hum. Something tells me Kenneth Baker has an uphill struggle ahead of him.

2966 red faces

THE old faithful 1904A was nearing the end of its working life and a shiny new 2966 was brought in to take over. In order to charge users the same rate for CPU time, a benchmark was devised to discover how much more power the new machine had, so that the charge could be modified accordingly.

Red faces all round when the results were produced. A number crunching routine, especially written for the benchmark, proved too difficult for the 66, breaking the instruction pipeline on a number of occasions. The end result was that this antiquated 1900 ran the test five times faster than the state-of-the-art orange box.

A fluke admittedly, but one to warm the cockles of any 1900 series aficionado's heart.

Getting warmer

TWO gadgets have come to my attention which I believe could bring a little sunshine into your lives. One is an electric welly warmer powered by solar batteries. An interesting concept, since I find my wellies are coldest when the sun plays hard to get.

The other device is a remote controlled microprocessor from Japan which will start your car — and heater — from a distance of up to 500 feet. It will have eight attempts at starting the car before giving up lest it flatten the battery.

It's a shame my old grandfather isn't around to see this. For years he would place a little oil burner under his carburettor on a cold night to ensure first-time starting.

Map message

THOSE Japanese don't miss a trick. A Tokyo graphics design company has brought out a map of Silicon Valley with all its computer companies clearly marked.

I find this rather uncanny and indeed I shiver as its full significance taps me on the shoulder.

The map must be motivated by the motto: Know thy enemy as the back of thy hand.

A dog's life

DOG-LOVERS are being invited to attend the Burroughs stand at the Info 82 exhibition this month to witness part of a worrying new propensity that salespeople have acquired.

There will be a bloodhound present whose legendary search and retrieval abilities are supposed to symbolise the similar abilities of Burroughs' new office system.

Chad

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, February 4, 1982

Great news for everyone

IT'S IT Year, but for the big manufacturers of microcomputers it might just as well be VLSIT Year. They are falling over themselves to announce machines which pack the latest wonder-chips into small business systems and send the price of computer power rumbling.

It's all great news for the commercial user as the giants at the small end jockey for market share.

Tandy, the biggest of the big three personal computer makers, has unveiled its latest contender for the business computer market in the TRS-80 Model 16, based on the up-and-coming 68000 processor from Motorola. For a US price below $5,000 it promises better performance than current top-of-the-line 8-bit products from rivals Apple and Commodore, and will compete directly with IBM's downmarket move, the Personal Computer.

Nipping in ahead of Tandy was Commodore with a powerful 8-bit machine retailing for less than $600, the Commodore 64. There are plans to add extensions which will allow it to emulate rivals' products, and the prospect of the "universal machine" running software written for Apple IIs, Tandy TRS-80s or IBM Personal Computers sent Apple stock down $2 in a day on the New York stock market as investors spotted the implications.

Despite rumours of a 68000-based comeback from Apple, the analysts are now expecting IBM to take over the number two slot behind Tandy by 1983.

□ □ □

Other high capability machines using 16-bit processors are bound to follow later this year. They will take on the giants as well as the second division stars like Altos, Convergent Technologies and Fortune Systems.

And that, as we say, is great news for the businessman. Even though the computing power offered by the 16-bit "super-micro" is far more than your average buyer will ever need. The fact that all that power is hanging around unused does not matter as long as the price keeps on falling so dramatically.

Technical features like the amount of memory bear very little on him. He will not be writing programs for himself and will only bother about memory if it affects the performance of the packages he acquires. Even those who go for the 16-bit system for features such as networking and the like generally don't end up actually using them.

The reasons people buy microcomputers are manifold, as the manufacturers are well aware. Customers buy because they have a friend with one, because the shop down the road sells that particular brand, even because the look of the thing fits their office decor.

□ □ □

Tandy, for one, recognises the advantage of image. With the launch of the Model 16 it took the reportedly "agonising" decision to abandon the battleship grey of the earlier TRS-80s in favour of a sleek ivory. Would-be professionals like their office equipment to look professional.

Even more important than this is to remember the roots of the mass-selling micro. IBM does, which is why one of the first application packages available for its Personal Computer — a 16-bit machine remember — was the fantasy game Adventure. The glossy colour photos handed out with the launch blurb featured children snuggled down on the living-room carpet glued to their IBM screen.

Commodore, too, remembers the way it got to be great. Along with its 8-bit business machine came a new Vic and a video game product aimed at all those Ataris and Sinclairs.

Multi-user business systems embodying the art of the VLSI designer will certainly make their impact this IT Year. But the micro market will be swayed less by boasts of the technologists than by the friendliness of the retailer, the look of the packaging, the quality of the advertising and, when all the business is done, the fun of the games.

All this technology is great news for everyone.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by I. R. McCoubrey of East Horsley, Surrey, who wins £5.

One thing in our favour is that the basic "tool" of IT is the English language. Even Japanese computers have to work in English.

Surrey Advertiser

LETTERS

VME/B scores with TP monitors

IT is true that the seeds of discontent over VME/B (CW, January 14) were sown by ICL itself in releasing a product that in terms of reliability and performance was not up to coping with a normal commercial workload. However, this is no longer a valid criticism.

VME/B probably does not perform as fast as George 3 because of the steps it takes to preserve the integrity and privacy of code and data, but it is fundamentally more flexible as an operating system. With hardware prices continually falling the performance shortfall is not of such great significance.

Another area not touched on where VME/B undoubtedly scores is in TP monitors. The ICL TP monitor for VME/B (TPO/TPMS) is excellent and requires no specialist knowledge. A fact reflected by the low market penetration of alternative monitors. Compare this to Driver/Comms Manager, which requires skilled programming to use and is frequently replaced by other proprietary products from outside the ICL stable.

In general, the article is conducting a comparison between a mature George 3 and the first releases of VME/B.

VME/B is now only some eight years old. At a comparable point in the life of George 3 the much heralded Mark 7 had not appeared and "all work would come to a halt for 20-30 minutes" every two hours.

George 3 is a fine operating system and was the best in its day. VME/B is also a fine operating system.

BRYAN R. D. PARLETT
New Ash Green, Dartford, Kent.

No Acorn until April

I WAS interested to read (CW, January 14) that Acorn expects all outstanding orders for the BBC micro to be "shifted" by mid-March. Today I've received a letter to say that my order may not now be despatched until "April". And I placed my order for a model A on December 11.

Now, one appreciates that there has been a snag in production, and that the huge amounts of orders have made a mockery of any planning, but the credibility of his company would be greatly enhanced if Mr Curry were to give the same story to me, a customer, as he has given to the Press.

C. R. DICKENS
Landford, Salisbury, Wilts.

HEC started an era

A LANDMARK in the history of ICL not mentioned in Harold Gearing's letter (CW, January 14) was the introduction by the British Tabulating Machine Company of its first computer, the HEC 2M, in 1954. This marked the start of a new era, in which the stored-program electronic computer took over from the electromechanical devices used until then.

Having a store of only 1,024 32-bit words, and virtually no software, it was a bit limited, but nevertheless the small band of users did remarkable things with it. An issue of The Tabulator in 1955 described how Esso was proposing to use it for planning the production of its Fawley Refinery, and at the Business Efficiency Exhibition in the same year its bridge-playing was the highlight of the show.

BRIAN DAGNALL
Lymington, Hants.

Viewdata interface for S100

I WAS somewhat surprised to read in your article on the Rostronics Lincs system (CW, January 14) that the Rostronics S100 viewdata interface is "the first to handle signals all the way from the telephone line".

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

Our client Hi-tech Electronics of Southampton has had an S100 viewdata interface available off the shelf for well over a year. This interface compares favourably with the Rostronics product, interfaces with virtually *any* S100 computer, and is available as a complete package of interface unit, Prestel modem and barrier box.

S. J. I. LEE
Managing director
Lee and Goddard Ltd
Southampton.

Liveware File by Don

You can do it without a machine

IT is perhaps ironic that Art of Communication (Downtime, CW, January 28) should have been printed next to an item about the perils of language translation by machine, as I feel that these examples of curious English show signs of translation, by human hand, from a foreign tongue, probably French. Allow me to explain.

A French speaker, wishing to express the idea of a process begun in the past and still continuing, will use "depuis" usually translated as "since" — followed by a verb in the present tense.

So, the grammatically correct "Depuis presque 20 ans Thomson-CSF prend part à" would, in a literal rendering, come out in English as "Since nearly 20 years, Thomson-CSF takes part in", exactly as given in the first example quoted.

Other languages may well use a similar form of words, so we can't be sure yet about the identity of the original, but fortunately we have the second example.

The French verb "disposer" is not quite the same as the English "dispose", and disposer de quelqu'un means to make use of, or draw upon, someone, which is good news for the employees concerned. Oddly enough, it would have been quite in order to say that the firm has a specialist team "at its disposal".

ROY CANDLER
Long Eaton, Nottingham.

It is this latter example which persuades me that a human translator is at the back of it all, as the assumption that a foreign word means the same as a similar one in one's own tongue is a common human failing.

The classic example, I suppose, is of the irate German in the English restaurant demanding "When become I the soup?" thinking that "become" means the same as "bekommen" (to get).

One or two other odds and ends. Under the heading New Chinese Proverb you speak of "machine language translation". Is this not an ambiguous expression, conjuring up thoughts of the translation of machine languages?

You may consider this a bit of irritating pedantry, in which case you would be perfectly justified in saying "blowing the fur to find flaws" — and that, believe it or not, is a genuine old Chinese proverb.

And finally, on to the subject of IT. We are going to hear a good deal on the subject until it "times out" at the end of December, unless it gets overshadowed meanwhile by the Year of the Scout. I recently came across a reference to IT in one of Stephen Potter's Lifemanship books, in which IT was given as Income Tax.

AVAILABLE APRIL 1982

FOR SALE OR LEASE

IBM 3830 Model 2, 2 x 3333 Model 11
6 x 3330 Model 11, 3525 Model PO3
3505 Model B02

Contact: Derek Phillips Maidenhead (0628) 23391.

NEW!

from the **TeleVideo®** family

New 925 giving a code compatibility with all the Televideo family plus a detached selectric styled keyboard featuring all the advantages of the 910, 912, 920.

TVI 910
- 8 x 10 Character Resolution
- Switchable compatibility

TVI 912
- True block mode terminal
- Extensive screen attributes
- Printer port

TVI 920
- Same as TVI 912 with extra function keys
- Optional 2 page memory (912 & 920)

TVI 950
- Advance editing
- Smooth scroll
- Numerous extra features as standard
- Full support available
- Add on graphics unit
- Firmware modifications on request
- Green screen now available on all models

RING BELPER (077382) 6811
TELEX 377878

FOR FURTHER DETAILS, LITERATURE, INSTANT PRICE QUOTATIONS

MIDLECTRON

MIDLECTRON DISTRIBUTION DIVISION
MIDLECTRON HOUSE
NOTTINGHAM ROAD
BELPER, DERBY. DE5 1JQ

Why ops should always know when the next crisis is due

KENYON . . . *"Ten consultancy studies for European clients."*

THE night shift has just gone home. The day shift is cleaning the peripherals – and the sleep from the eyes. Two of the most important batch systems are overrunning.

The shift leader receives an irate phone call from the user of one of the late systems:

"Where's my listings?"

"OK, we'll give your job top priority."

The shift leader replaces the handset. The phone rings immediately. It is the user of the second late system:

"Where's my listings?"

"OK, we'll give your job top priority."

How often has this arisen at your installation? Is it only resolved by the intervention of the DPM giving judgment in favour of the system whose manager has the most clout?

If so, then it is likely that your site has no effective monitor on performance or machine capacity.

Most large organisations have some semblance of standards for new and modified systems: maximum permissible disc accesses for each transaction, main store occupancy of programs, and so on.

But all too often, these standards are ignored or even deliberately flouted.

I have known systems to be submitted for vetting at the design stage which adhere to all the corporate standards only because the project manager has been less than honest about the number of disc transfers per message pair, or the number of message pairs expected per hour.

When the finished system is run the machine is severely overloaded, all the other tasks are delayed, and something has to be taken off to enable the most critical work to run reasonably.

Lack of foresight can cause machines to run out of steam. Again, no one person will usually admit responsibility for predicting when a hardware upgrade will become necessary. The usual turn of events is large-scale panic during which jobs will be re-scheduled in a last-ditch attempt to get the critical work out on time.

Eventually the required hardware is installed and the department can breathe again – until the workload builds up once more.

This type of amateurish occurrence could be avoided if there were one person or department solely responsible for the performance of the machine and the vetting of proposed systems. It is not enough to rely only on the project managers involved.

This department should be part of operations rather than systems. If your boss is also in charge of a project he or she may be tempted to twist your arm to smooth its acceptance, and you will feel obliged to help out your workmates. Don't forget it is always operations that gets it in the neck when the workload gets behind schedule.

The most important aspect of performance monitoring and capacity planning is that it should be a continuing process rather than a one-off or annual event. This key part of the DP department should be responsible for performance data collection, evaluation, reporting and planning procedures. Once established these will form the nucleus of a comprehensive management information system.

The data shown on the reports will naturally depend on the particular requirements of the site, but whatever the detailed information, there should always be a management summary of the most critical resources.

As a rough guide, this should include TP response times and numbers of message pairs by application, user program concurrency, the number and duration of batch and interactive jobs, disc traffic and the number of pack changes required, CPU idle time, operating system CPU time, mainstore occupancy, and communications processor traffic. Each resource should also have a percentile growth figure.

Performance and control technicians worth their salt will see to it that they are not presented with a plethora of figures each morning which require plotting on to a vast array of graphs spread around the office walls.

Computers are there to take the drudgery out of this kind of work, and it is only common sense to utilise them fully in monitoring their own performance. In showing trends and predicting future events, an operations database is of prime importance.

Once set up, the daily performance runs should maintain the database automatically, meaning that the best P&C people are always at risk from their own systems – if you build an all-singing, all-dancing monitoring and prediction package, the company can dispose of you and still get the necessary reports.

Having decided on what reports are required, the next problem is finding the data needed to produce them. Most operating systems provide an inordinate amount of performance information which will require extraction and reformatting before it can be used (Thomas' first law of operating systems states that "The required data is never in quite the right format"!).

It is a good idea to build a discrete data collection and formatting routine, rather than coding it into the performance package itself. This means that if your organisation should install a new machine of different manufacture or architecture, only a new data collector will be needed.

If your responsibilities cover more than one machine, you should at least attempt to consolidate the performance reports into one document.

If your company is not in a position to set up a performance and control department because of its or financial restrictions, there is no reason why you cannot reap the benefits of performance monitoring and capacity planning.

There are packages on the market for most types of hardware, and they can provide off-the-shelf monitoring and prediction. If your finances will not stretch to purchasing the software, it may be possible to use a consultancy firm which will do a one-off exercise for you.

Logica, for example offers a performance monitoring and capacity planning package and a consultancy service. Its package, called BEST/1, uses a software model of the installation and calculates the key performance characteristics for the different types of job and for the system as a whole.

BEST/1 will run on almost any mainframe, says Logica, which supports a Fortran IV compiler.

> **It is the service to users that matters, rather than how the machine is performing**

It offers reports on when the system will run out of capacity and require upgrading, determine which units will require replacement, assess the performance impact of new or growing applications, advise on operating system tuning and hardware reconfiguration, and will evaluate various hardware alternatives.

The package is in use in 230 sites, all but 12 in the US, the majority of which are IBM MVS sites. It is therefore logical that a data collection program should be made available for the MVS operating system.

Capture/MVS reads the software monitors which are produced by MVS and formats them for BEST/1. In addition, it produces more detailed performance reports than the standard IBM RMF post processor.

BEST/1 can be run against the actual performance figures, and will alter parameters until the modelled performance matches the actual figures.

Nick Kenyon, the manager of Logica's capacity planning division, states that batch figures will be ± 5%, and TP response times ± 15%.

"We have done 10 consultancy studies for European clients on most manufacturers' hardware, except ICL," said Kenyon. There has been little interest shown by ICL sites as yet, he added.

"Larger systems have a huge motivation to become more cost-effective," he continued. "You must be able to predict when the hardware will run out of steam before it is too late."

Kenyon stressed the importance of monitoring service levels, such as TP system response times and batch throughput, rather than the more esoteric operating system resources such as paging and CPU utilisation. "It is the service to users that matters, rather than how the machine is performing," said Kenyon.

Logica also sells Crystal, a tool to evaluate the performance of new applications at module level while they are being designed and developed. The performance of the complete system can be predicted at any stage, thus allowing corrective action to be taken before the system goes live – it is rare for a system that will support 200 users to be tested with a full load. A system that performed adequately under test conditions may collapse under the strain of live running.

Would it not be a good idea for your installation to know, with a fair degree of accuracy, when the next crisis is due?

We're rich in the one resource no service industry can do without.

That's why more and more Computer Software, Architectural, Engineering Design and Technical Consulting companies are locating in Ireland.

They're coming to the country where over 50% of the population are under twenty-five years old. These young people have grown up with an educational system specifically tailored to equip them for this technological age. Each year sees a further upsurge in the resources devoted to higher education in technical areas. Fields like engineering and computer science.

It is these young people who provide a workforce potential unequalled anywhere in Europe or the U.S.

But Ireland is more than a rich source of educated staff. In Ireland you will find an attractive incentive package specially designed to meet the needs of technology-orientated industries. Industries where personnel is the key factor.

Ireland offers 100% training grants to new service industries and generous employment grants. And these are just two of the cash grant programs available. In addition, you'll find that Ireland has the lowest corporate tax structure in Europe.

You will also find a working environment that is second to none in an age where employees rightly expect their job to permit an attractive lifestyle as well as simply a good salary. Because, in Ireland, while keeping pace with the changes dictated by this technological age, we've managed to retain all that is good in our environment and way of life.

Find out more about locating in Ireland. Contact the nearest office of the IDA Ireland for further details. We'll be glad to help.

REPUBLIC OF IRELAND
The intelligent location in Europe for international services.

IDA Ireland
The Irish government's industrial development agency has offices in London at 58 Davies St., London W1Y 1LB. Telephone David O'Donovan at 01-629 5941.

Tridata directors Cooke (right) and Plackowski.

Ex-mainframers break into the micro market

WHEN mainframe programmers find themselves in a rut, some change gear to micros and drive off on a road of their own.

This is what two young men in Birmingham did, and so far their bank managers have been laughing all the way to work. As package software suppliers to micro users they pay themselves "roughly what contractors with comparable experience would earn", with the additional perk of a company car.

Bread and butter commercial software packages like sales ledgers are the main business, and there is no desire to cultivate new pastures – there is plenty of demand for straightforward business software on micros.

Bespoke work is anathema. "We handle in-house modifications to packages, otherwise we steer away from bespoke, because we can sell ten packages in the time we are talking about the design of a bespoke system," says co-director Mark Cooke.

The company, called Tridata, was established in 1978 after Cooke and Tony Plackowski, the other director, had met on contract for British Shoe. "I resigned after taking a holiday," says Plackowski. "We both found contracting dead-end and wanted something permanent."

Both men complain that contracting teaches very little and merely rewards, albeit handsomely, skills already acquired. But for them contracting eventually proved open-ended rather than dead-ended. They had little starting capital, and so for six months they worked contract by day and wrote systems for micros by night.

They were entirely self-taught, but do not consider their particular kind of work especially difficult. "Most experienced mainframe people could get into micros easily enough," says Cooke.

Cooke and Plackowski began slowly, without a bank loan, and have since been wary of expanding too fast. "We did, however, have a friendly bank manager who allowed us overdraft facilities," says Cooke. They now have eleven people working for them.

Both men have worked hard for their success and still put in 12 to 14 hours a day plus Saturday work. Not that this is unusual when people work for themselves, but Plackowski reckons this has cost him his marriage as well.

This is an occupational hazard of small businesses. An answer is to have one's spouse participate in the business, but then, as an ex-colleague of mine discovered to her cost, the strain of spending too much time apart is replaced by that of spending too much time together.

Tridata produces general accounting packages for CP/M microcomputers, particularly Tandy. Sales are mostly made through the dealer market, and there is little attempt to reach the customer directly – a hopeless task, says Plackowski.

Marketing has been by word of mouth and display. The packages can be bought in Tandy computer stores, and in some others as well.

Products are all written in Basic. "All things Cobol go out of the window here," says Cooke, whose school of thought teaches very practical values. It is hard to reconcile the views of the purists who refuse to have their children learn Basic lest it corrupts them for life, and those of the people of Tridata who satisfy a market for software plain and simple.

Tridata sold 1,100 packages for between £160 and £345 in 1981, which represented growth of 34%. Even better figures are predicted for 1982.

But Plackowski boasts of trying to limit Tridata's growth in 1982. He seems proud of being small, and fearful of becoming thin and stretched through too rapid growth.

Most sales are in the UK, but Tridata has established contacts in the Middle East and Africa. "We have not cracked the US yet, though," says Plackowski, who adds that there is a big market for British micro software there. "US systems software is good, but its applications software is poor," he concludes.

The main problem about the US micro package market is, in Plackowski's opinion, that packages have to be written specially.

Tridata sells in South Africa, which raises the ugly question of apartheid. Cooke, who is black, feels strongly about it, but feels that so long as the software is not for military projects, there is no moral conflict.

"I haven't time to dwell on the negative aspects of being black," he says. "I have never felt inhibited and have found that no one cares so long as you know what you are talking about." He adds the qualifier that perhaps blacks are held back from promotion in larger organisations.

Recruitment is now done by advertising in the local Press and from Tops people getting in touch. So far two Tops people have been taken on, and Plackowski is pleased with their work, feeling that Tops graduates come in for much unnecessary criticism.

PUZZLER

	21	10		
9			26	15
	8			
	27			

IN this week's problem you are given seven numbers of a 5 x 5 magic square, and asked to determine the placings of the other eighteen.

Each of the five vertical columns, five horizontal rows, and two main diagonals, sum to a constant of 80. The 25 numbers used run in consecutive sequence (but not starting at 1). See page 45 for solution.

Contract staff agencies can smooth your path to the sun

by Boris Sedacca

WHEN times get tough, people start thinking about packing up their bags and emigrating to a country with better economic prospects and climate.

Skilled analysts and programmers are tempted to apply for emigration at the US or Australian Embassy, even though it can be a demoralising and time consuming process.

In the case of immigration into the US, an individual acting on his own can face delays of one-and-a-half years or longer before he can get his "green card", an immigration visa which will allow him to remain and work in the US indefinitely.

Contract agencies, on the other hand, can get people over quicker, although on a temporary basis. The VLI Group, one of the leaders in the field, has been working from offices in New York and Los Angeles for over five years.

Tony Vickers, international director for the VLI Group, explains that the amount of time taken to process applications varies in the nine autonomous immigration districts in the US.

"We can normally get an application processed in one or two months because most of our business is project oriented for periods of about one year, although it is not unusual for projects to overrun to 18 months in some instances," said Vickers.

The success of VLI's operations has encouraged smaller operators to get in on the game.

Times have never been better at International Management Consultants, a contract agency operating from an address in Hollywood's flashy Sunset Boulevard.

IMC's clients in southern California are clamouring for staff to operate their installations, while programmers and analysts in the UK are beating a path to IMC's door as a prelude to gathering up their families and possessions and emigrating.

> **The individual will not only have to adjust to a change of company but also to a cultural change**

IMC is represented in the UK by Computer Software Services, which does the initial screening of applicants. CSS is all set to compete with the big boys such as Lambda, Knight and the VLI Group, the more established names in the UK brain drain.

IMC claims to be able to process H2 visa applications, the US equivalent to the British work permit, in three months.

The company was set up three years ago by Al Rogers, president of IMC. He is also legal administrator at a specialist law firm called the Immigration Clinic to which IMC is affiliated.

Rogers explains that staff are brought in by a process of labour certification.

"Firstly, the US Department of Labour screens the individual to determine whether he will displace an American national from a job. This process takes 30 days by means of 'block certification'.

"Then the Immigration and Naturalisation Service (INS), the body responsible for approving H2 visas, investigates the individual to verify that he has a good character, that the job actually exists, and that he has the necessary qualifications – all in all to ensure that it is not a fraudulent application.

"This takes a great deal of time because the INS is understaffed, but we can also process this in around 30 days. Finally, the US Embassy in London interviews the individual and stamps his passport with the H2 visa, which is normally valid for one year up to a maximum of three years."

The H2 visa is a non-immigrant visa issued on the understanding that the job is temporary in nature.

Rogers argues that companies will not make a commitment to keep a job open if the process takes more than three months.

"We approach officials on the basis of national interest or in the interest of the US economy, because we can argue that lack of staff stifles growth. If we could not prove that demand outstripped supply, or if there is any doubt in officials' minds about any application, then they go through the whole investigative process.

"Therefore, we have to take the cream of applicants, because we can only short-circuit the process if we can prove that the individual is highly qualified.

"We have over 100 years of combined experience on immigration law in our firm, which will handle up to 1,000 open cases at any one time. It takes time to build up experience and information on the way to process applications. But people can apply on their own – they do not need a law firm to do this."

Anne Hawkes, director of Computer Software Services, claims to have interviewed about 100 people in the UK over a period of two weeks for IMC. Of these just over 30 have been taken on.

"If the applicant is not single we have to interview the whole family because they will have to adjust to the new situation. The individual will not only have to adjust to a change of company but also to a cultural change, so he is interviewed on his adaptability too," she said.

"At the moment there is a shortage of programmers and analysts for IBM, Burroughs and NCR mainframe equipment, as well as Digital Equipment minicomputers. People change jobs more frequently in the US and programmers spend about nine months on average in any one job.

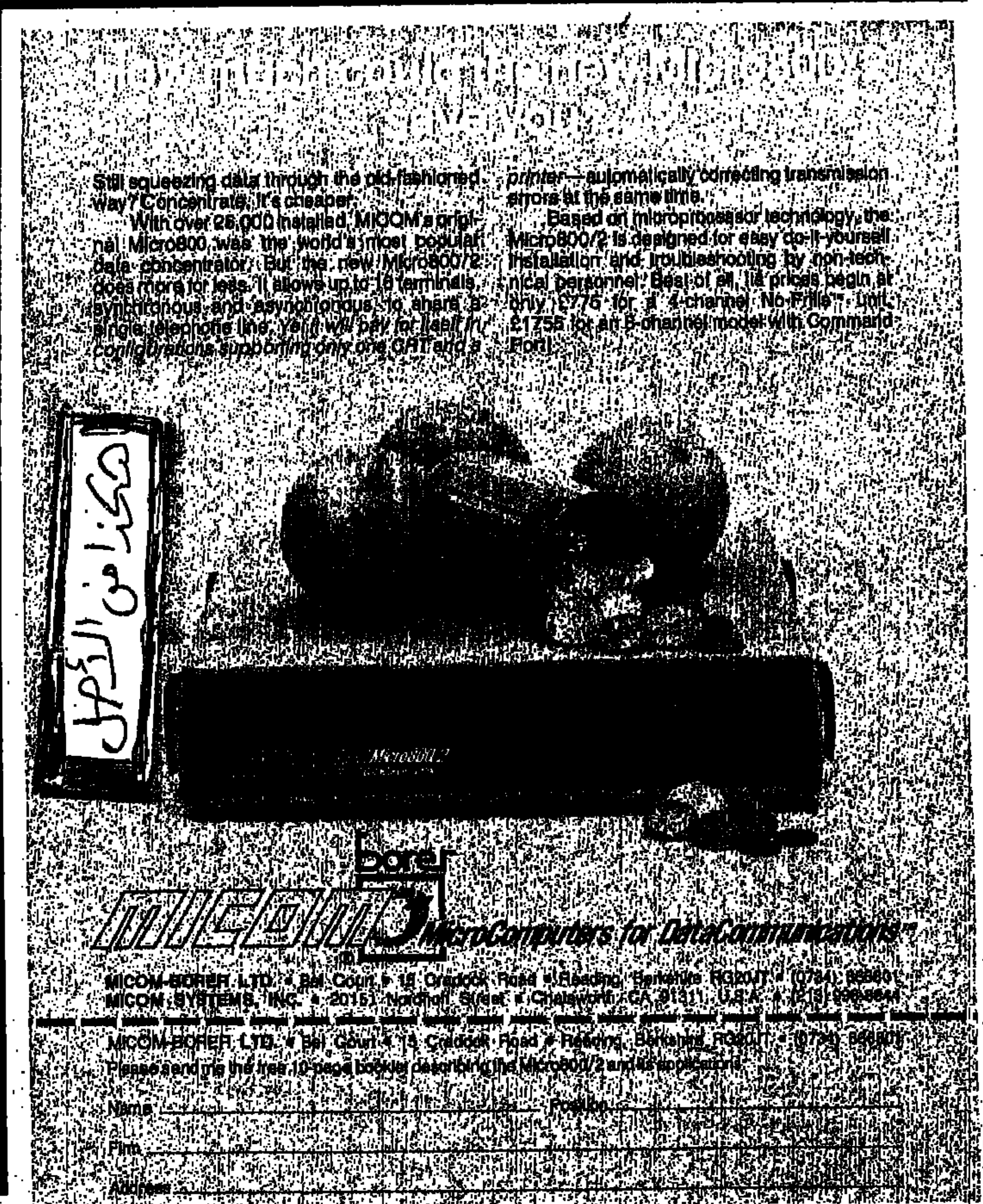
"We can guarantee personnel for at least one year and we normally contract for up to 20 people at a time. Our clients are mainly interested in Cobol programmers, but there is also a demand for Fortran and Assembler programmers, software development staff, and even geophysicists."

Rogers adds: "We find it better to shift whole families because if individuals have families to go to after work, it helps them to adjust more readily. If they do not stay on the job because they find it difficult to adjust for any reason, not only do we lose an employee, but we also risk losing a client.

"We do not actually pamper them but we help them every part of the way to their new job. Our employee relations department looks after things like housing because credit facilities are difficult to establish in the US. We also help them to obtain driving tests and car licences, provide free tax and legal consultation, access to doctors and dentists, and schooling for children.

"It is a different type of life in Los Angeles – people are very casual and the climate is good. What is more, people there are fond of the English."

IMC president Al Rogers and director of CSS, Anne Hawkes.



Midlands firm to train local school-leavers

FIFTEEN school-leavers in the West Midlands area are to get computer training from Dudley-based SysCom Computers, under the government's Youth Opportunities Scheme, YOPS.

The youngsters, who were selected by staff at the Careers Offices in Dudley, Wolverhampton and Tipton, will train for 13 weeks and the course will show how computers work and how businesses can make use of them.

The business side will look at office procedures and business systems. The trainees will be familiarised with computer terminology and learn how to operate certain items of equipment including word processors.

The course is being supervised by the Dudley Careers Office.

A CONSULTANCY to provide telephone marketing services and telephone sales training courses for companies in the computer industry has been set up by Lynda Wood, former sales promotion and PR manager with Mills Associates. She has over 10 years' experience in the telephone marketing field and since 1974 has concentrated on selection, recruitment and training of sales staff. The company, called Lynda Wood Telephone Marketing, is based at 1, Agincourt Square, Monmouth. Tel: (0600) 5650.

■ **Janice Walden** has been appointed user base manager at CTL's Southern Region. She was previously in sales and support with ICL. **Marc Strallen** becomes area sales manager for the company, covering North London and parts of Essex and Middlesex. Strallen is also ex-ICL, as is **Mark Roberts** who joins CTL as area sales manager covering Herts, Bedfordshire, Suffolk, Norfolk, Cambridgeshire and part of Essex.

■ **John Moore** has been appointed district manager of ADP Network Service's financial district. He was previously Northern region sales manager with Unilever subsidiary UCSL.

■ **George Sebestyen** has been named vice-president, international sales and marketing, at Vector Graphic Inc of California. He joined the company from TRW Datacom International, where he was marketing manager.

■ **Marc Calzavara** has been given responsibility for sales in the Eastern area for Computer Associates. He has been with the company for three years, until recently based in Milan.

Winner of Data General's Student of the Year Award is Mike Fleming, a senior programmer/team leader at the computer development division of Barclays Bank in Forest Gate, London. Presenting him with part of his prize — a selection of wines and pates — is Data General's Carol Duncan, who is UK and Ireland area customer training manager. The Award is made annually to the most outstanding student selected by lecturers on DG's customer training courses.

■ **Mike Deeks** has joined Digico from Vero Systems, where he was a sales engineer. He will take on mini and Quadstore sales in East Anglia.

■ **Graham Lockie** has joined Vermont Research as regional sales manager for Northern Europe. He was previously a sales executive with Centronics.

■ **Susan Frampton** has joined Butel Business Systems as London office systems manager from Data General, where she was systems engineering branch manager.

■ **John Richardson** has been appointed national sales manager at Codex. He joins the company from Racal-Milgo where he was Northern Regional manager.

Internal promotions at MSA

SOFTWARE company MSA has filled four managerial posts by internal training and subsequent promotion.

Michael Duff, who joined the company in 1979 as a systems consultant becomes divisional support manager; **Martin Fairburn**, also a former systems consultant has been promoted to payroll/personnel support manager; **Martin Judd**, formerly technical support manager, Europe, at MSA's Belgian head office returns to the UK as support services manager. Another former systems consultant, **Chris Stoker**, who joined the company in 1980, has been appointed divisional support manager.

■ **Peter Underhill** has been appointed senior sales executive for CTL's Convergent Technology microcomputer systems. He will cover the North of England, and will be based in Salford. He previously sold distributed systems for Q1 Europe.

■ **Ray Dennis** has been appointed marketing executive at the flight controls division of Marconi Avionics. He was formerly engineering manager of the company's flight automation research laboratory.

■ **Barry Barker** has been appointed sales manager at CPU Peripherals, after several years in design engineering in the electronics industry. Marketing manager is **Mike Ayres**, who has 16 years' experience in the computer industry.

Thallon *Beardow*

Senior analysts

PRIME Computer is continuing to expand user support facilities with the appointment of two senior analysts.

Jeremy Thallon has joined the company's government division, to provide support for users in central government and nationalised industries. He was previously a systems executive with ICL, working on systems analysis mainly for users in wholesaling, retailing and distribution.

Peter Beardow will be responsible for users in the Southern district. He will specialise in communications, including the company's Primenet interactive networking system. Beardow previously worked as a support analyst at Northern Telecom.

New director

CAMBRIDGE based Information Transfer has elected Nicholas Clayton to its board of directors. Clayton was research assistant to the director of the Department of Aerial Photography at Cambridge University between 1973 and 1979.

CONFERENCES

■ THE most recent developments in Office Automation and Integrated Information Processing Support Systems is the theme of Frost and Sullivan's latest seminar, to be held at London's Cumberland Hotel from March 17-19. It aims to describe office automation concepts and capabilities, discuss its uses and identify its benefits, and review some of the more advanced products on the market. It is intended for those involved in office automation planning, business communications, word processing usage, electronic mail and information systems design. Fee is £360 + VAT. Details from Frost and Sullivan, 104-112 Marylebone Lane, London WIN 5FU. Tel: 01-486 8377/9.

■ COMMUNICATIONS 82 is intended as a "total communications exposition," according to its organiser, Tony Davis Communications. Products on show range through systems, equipment and components used in communications including transmission, switching and terminal equipment and associated products and services for recording, testing and maintenance. The event includes a conference organised by the Institute of Electrical Engineers which will consist of papers on switching and PABX, LSI in communications, radio systems, informatics and transmission. The event will take place at Birmingham's National Exhibition Centre and the adjacent Metropole Hotel from April 20-22. Details from Industrial and Trade Fairs, Radcliffe House, Blenheim Court, Solihull, West Midlands B91 2BG. Tel: (21) 705 6707.

DIARY

FEBRUARY 9

The electronic office. BCS Croydon branch. Maple Room, Fairfield Halls, Croydon. 7.15.

Unix. BCS Harlow branch. Norfolk Room, Saxon Inn, Southern Way, Harlow. 7.30.

Visit to IBM Greenock. IDPM Scottish branch. 7.30.

Information technology — the next five years, current developments and their implications. IDPM W. London to Oxford branch. Bull Hotel, Gerrards Cross. 7.30.

FEBRUARY 10

Exotic graphics. BCS Belfast branch. Department of Computer Science, QUB, Botanic Gardens, Belfast. 2.30.

Kidney Unit visit. BCS Bristol branch. Contact PD Hemming, Engineering Computer Centre, Rolls-Royce, PO Box 3, Filton, Bristol. Tel: 693871 ext 904.

Database design and operations. BCS Database Group. Room G6, New Engineering BLock, University College, London. 2.00.

The future for Prestel. BCS Kingston branch. Board Room, Kingston Polytechnic, Penrhyn Road, Kingston-upon-Thames, Surrey. 7.15.

Image processing. BCS Leicester branch. James Went Building, Leicester Polytechnic. 6.15.

Microelectronics on merchant ships. BCS Newcastle branch/ IERE. Ellison Building, Newcastle Polytechnic. 6.00.

Ada. BSC Sussex branch. Lecture Theatre AS1, School of Engineering and Applied Science, University of Sussex. Falmer, Brighton. 7.30.

Microprocessor systems and small businesses. BCS Teesside branch. Teesside Polytechnic Borough Road, Middlesbrough, Cleveland. 7.00.

The Weather business, by Jack Scott, BBC Weatherman. Joint meeting of Institute of Quality Assurance and BCS Wolverhampton branch. Connaught Hotel, Wolverhampton. Tickets £2.8. Contact A. J. Powell, Dept of Computing and Mathematical Sciences, The Polytechnic, Wolverhampton. 7.30.

Cable fault location. IBSTE Canterbury College of Technology, New Dover Road, Canterbury. 7.30.

FEBRUARY 11

Bridging the gulf between the developer and end-user. BSC Study Group 5. Staff Training Department, Prudential Assurance, Mezzanine Floor, Main Prudential Building, London.

System sizing. BCS Guildford branch. Queens Hotel, Lynchford Road, Farnborough, Hants. 7.30.

Small and personal computer systems. BCS Merseyside branch. Tandy, 16 Lord Street, Liverpool. Details from William Gaskell on (051) 235 3236. 6.30.

School links with industry. BCS Oxfordshire branch. Staff Coffee Lounge, Oxford Polytechnic. 7.45.

Colour Communicates...

*Ideal for Viewdata, Prestel, etc.
*Business and micro-computers
*Point of sale displays
*Learning & communication terminals

...with L.C.C.D.
LOW COMPLEXITY COLOUR DISPLAYS

This unique and economic Low Complexity Colour Display developed by Microvitec is a high-performance modular VDU designed to be driven directly from any logic source to produce alphanumeric and graphic displays in sparkling colour with a clarity and legibility unmatched by normal TV monitors or modified broadcast receivers. In addition to economy, the LCCD offers a high-quality specification featuring:
*14" or 20" screen sizes
*525 line 60Hz/625 line 50Hz operation
*Fully isolated switching power supply
*Direct RGB interface
*Standard or high-resolution options available in three forms:
Uncased chassis-plated wire frame
Moulded structural foam case
Metal case

MICROVITEC
Microvitec Limited, Futures Way, Bolling Road, Bradford, W. Yorks. BD4 7LU Tel: (0274) 390011 Telex: 517717

visual display unit tables by METALLIFORM

METALLIFORM LIMITED
Chambers Road
Hoyland
Barnsley S74 0EZ
0226 742187

Systems may soon be talking to each other . . . . Frank Taylor reports

The systems interconnection standard nears completion

FOR some time there has been a pressing need for standards which will enable systems to talk to each other.

The development of standards for Open Systems Interconnection (OSI) which began in the UK in late 1975 has now progressed to a point at which the definition of an architectural structure or model for the standard is now complete, and has been registered for international standardisation.

More recently, attention has been given to the definition of standards for services and protocols consistent with the model, which will provide a basis for initial open systems. In this context services are the facilities offered by the conceptual layers of the model, represented in real life by either communications hardware or low and high level communications software.

This model is shown on Figure 1 as a layered protocol structure. The management of liaisons and certain services does not fit into the layered structure, although negotiating information cascades up and down the layers and one management layer initiates negotiation.

If a negotiation is successfully completed, then an information transfer between two layers can occur. Liaisons may be of several types — interactive, one-way transfer or Remote Job Entry (RJE) working. When this operation is completed, the liaison is then terminated so that information, data or incompleted work is not lost, and termination itself has to be negotiated when all jobs are correctly completed.

Examples of such layered structures may be found with airlines using the International Civil Aviation Organisation's network, weather forecasters with World Weather Watch, and the US Department of Defence's Advanced Research Project Agency (ARPA). Arpanet was the first operational packet switching system between multiple hosts and performs the same functions as OSI, although it uses different protocols.

The services provided are concerned with negotiating the transfer of information, establishing a path along which it can flow, controlling the flow and terminating the existence of the path when the transfer is complete. Protocols in this context describe the controlling dialogue which initiates, terminates and governs use of the services just described.

Creation of an OSI connection involves despatching initial data responsible for negotiating possible transfer paths and characteristics between two or more systems, and despatching information down a conceptual layer structure in such a way that information required by each layer is "peeled off" as it reaches that layer. This is shown in Figure 2.

Functions within the interlinked system must align — as shown in Figure 3. Alignment is vital, especially if the linked systems have different primary functions.

There are seven layers. Typical data processing work functions at the applications layer on the left-hand side of the diagram, which represents the host computing facility.

The centre of the diagram represents the switch or transport service which provides the intermediate communications mode, with additional functions in microcode such as delayed delivery. This is the domain of the common carrier. No data processing takes place here.

The right-hand side represents the terminal elements of a system with typical text and facsimile transfer system.

Some of the issues highlighted by this approach include a specification of the amount of data which may be exchanged during the negotiation phase, whether or not it should be "expedited" — that is, accelerated so that it overtakes normal data being transferred along the same or parallel paths — and the security of negotiations, when sensitive information is involved and it may be desirable to keep negotiations secret.

During the actual transfer of data, security is important and the transformation of information into forms other than "clear text" (human readable text) within layers 6, 4 and 1 is being discussed, as is the technology of encryption/decryption used to protect information. Many workers feel that the 64-bit key used by the now well-known NBS/IBM algorithm is not adequate for many sensitive transfers, and longer keys are required.

The activities of the CCITT, the body which collectively brings together the world's Post and Telegraph authorities (PTTs), are also attracting attention. Some of the newer services specified by CCITT, such as teletex and videotex, broadly map on to the OSI model at various levels.

For example, teletex has got a transport service within its specifications (S-70) and another standard for control of the creation, operation and release of inter-system "sessions" which corresponds to the functions of Layer 5 (CCITT Standard S-62).

What is not clear is whether it would be possible to map directly from CCITT's S-62 standard to ISO's Transport Service standard, and vice versa, and similarly whether mapping from ISO upper level standards to CCITT's S-70 transport standard will be possible and permissible.

Many workers feel that CCITT members will not favour such cross-links at intermediate levels, and it may be necessary to handle particular transfers using wholly ISO or wholly CCITT standards and structures.

Similar circumstances apply to the videotex field — videotex terminals promise to offer a low-cost method of presenting information using low-cost terminals. However, it is far from clear whether videotex standards such as the new CEPT standard T/CD 6-1 will map directly on to ISO session layer standards and vice versa. Lower down the conceptual structure it is unlikely that the relatively simple control features associated with videotex transfers, normally via the Public Switched Telephone Network (PSTN), will satisfy the requirements of the ISO network layer.

Many issues are yet to be resolved. However, once these issues have been resolved, and the protocols and services standardised, the user dialogues used to drive systems software will be essentially standardised. System software with standard interfaces and functions will then become implementation dependent, rather than differing in dialogue and structure, and the emphasis, so far as vendors are concerned, will be on effective implementation rather than unique features — which today lock many users into particular manufacturers' offerings.

Charles Bachmann, chairman of ISO's TC- 97/SC 16 Committee, responsible for OSI work, believes that system software will become a commodity when that point is reached — and furthermore, resilience will be built into many systems by dividing processing across many distributed systems which will automatically communicate.

Other benefits will be reduced training costs, eased interconnection of foreign peripherals to any particular system, and decoupling of user programs from today's conversion costs since the environment within which they operate, at the applications level, will be standardised.

This should result in a high level of protection then applying to an investment in costly and complex application programs, and a fall in the cost of their application, since it will be possible to transfer them to any compatible environment and spread the investment across a wide user base.

By that time Open System Standards should be completely buried within firmware, and simply be a transparent facility which the user will treat in the same way as he today treats a motor car — something he drives, without necessarily being concerned with its detailed technology or performance!

● *The author will be one of the speakers at the joint NCUF/IEEE Symposium entitled A Better Way to Communicate, to be held on February 9. He is principal of Systems Technology Consultants in Knutsford, Cheshire, and immediate past chairman of the British Standards Institute's Committee DPS/20, now OIS/16, which is currently progressing UK work on OSI.*

Applications	Provides an intersystem link which is transparent to users when established
Presentation	Pre-negotiated terminal dialogue and printing protocols, etc.
Session	Establishment, commitment, recovery
Transport layer	Sequencing, flow control, priority (security?)
Network layer	Routing/switching
Data link layer	Procedures + data layout Establish, maintain, release
Physical	

Figure 1. OSI structure: protocol layering.

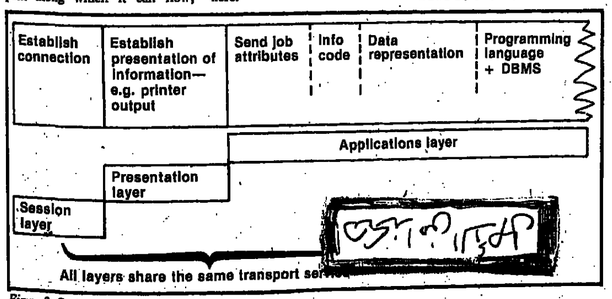


Figure 2. System alignment of functions.

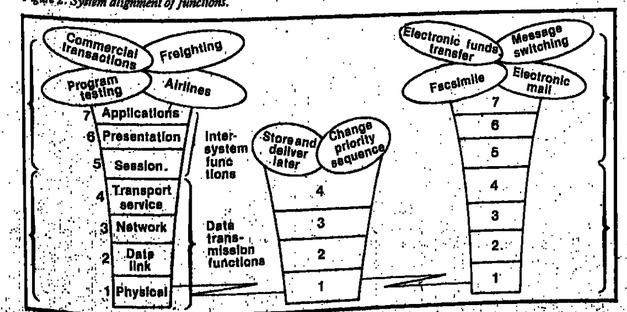


Figure 3. Schematic of two systems linked OSI principles.

Basic-Plus RSTS users

BACmac the RSTS Supercharger

from ADOS

BACmac is a simple-to-use, fully automated Basic-Plus to Macro convertor/compiler, providing true compilation of Basic-Plus programs. BACmac is operative at over 50 sites wordwide providing users with increased power and performance.

● Throughput/response problems?

Basic Plus is interpretive and therefore slow. BACmac, however, compiles your programs and thus dramatically improves execution speed. A user's program sorting 5,000 records using a virtual array workspace exhibited the following CPU usage . . . (times in CPU seconds):—

Basic +2 (BASIC 2.RTS)	Basic +2 (BM2COM.RTS)	CSPCOM	Basic Plus (RTS)	BACmac (TASK)
801	1076	840	350	201

● Grow greater than 16K

The limits of 16K words of program area is restrictive.

BACmac can, up to a limit, produce runnable task images from programs that will load into memory but exceed maximum available memory during execution. With BACmac, the user program area is up to 28K words (31K with RSTS V7).

● Defeat the pirates!

If you write in Basic Plus then you know that decompilation is a problem. BACmac converted programs, however, cannot be decompiled.

Powerful to use
Performance Guaranteed

BACmac GUARANTEE ensures that you may receive a full refund by returning BACmac within 30 days accompanied by a demonstration that it fails to perform to the published Product Description.

BACmac can be purchased outright or leased over 36 months:—

Prices from £1,395 or £52 per month

Basic-Plus/RSTS/RTII/DEC are registered trademarks of Digital Equipment Company.

ADOS

Contact:
ADOS Limited
College House, King Edwards Road
Ruislip, Middlesex HA4 7AE.
Telephone: BACmac Sales, Ruislip (08956) 72681
Telex: 939579

Many independent retailers now realise it is economic to install a point-of-sale terminal . . . Nicholas Benwell reports

Nation of shop-keepers takes to computers

IT is almost impossible even to have breakfast without becoming aware that bar-coded packaging is widespread. Traditional packaging such as Tate and Lyle's golden syrup has been "improved" by the addition of a bar code.

The European Article Numbering Committee reports an increase in source-marked food items in 1980 of 430% over those sold in 1979. And 1981 showed no slowing down in this trend, despite the recession.

It is now economic to install an electronic point-of-sale terminal in an independent owner-occupier shop. Bob Leggett of TAL Computer Division has fully computerised Richard Anderson Ltd, TAL's retail outlet in Leighton Buzzard, Bedfordshire, which sells cameras and other photographic equipment.

Richard Anderson, which has a staff of four, is pleased with its Pet-based PoS installation.

Leggett justifies the investment simply – a normal electronic cash register costs almost as much as his diskette-based computerised system.

He costs his investment as follows:

	£
4016 Pet	500
Single diskette drive	400
Fully-interfaced till drawer	250
40 column Whymark printer	300
Software	100

In addition to the normal shop transactions, he has systems to handle films left for processing, monthly accounts, customer receipts, delivery notes and credit details. All the data is diskette-based and he is able to do end-of-day, end-of-week and end-of-month reconciliations easily, together with substantial detail if necessary.

He can cater for customers who hand in films and then lose their ticket, customers who want refunds or who want to open an account.

TAL's point-of-sale installation at Richard Anderson Ltd.

TAL Computer Division is a small but reasonably well known software house in Bedfordshire, especially for its Pet-based financial packages which it has sold to 10 or 12 businesses in the district.

Software Sciences, part of BOC International, is another Bedfordshire PoS pioneer, but on a larger scale. It also deals with the small end of the retail trade and recently sold a computer-based PoS system to Hudson's bookshop, which has a staff of six in Coventry. Its Duet system allows it to carry out normal sales transactions. Unlike Richard Anderson, where every transaction has to be keyed in on the keyboard, Hudson uses OCR "A" wanded input. Once the data is entered, a full stock control system and a full analysis of the shop's trading position by topic is provided – for example, it will indicate whether gardening books are getting more popular. A trading history by publisher as well as the usual analyses of credit, sales to date, the particular location of books in the shop and the date when the last copy of a book was sold are also available.

In addition, the system can output the value of the books that are on order as well as those that have not arrived. It can provide a better service to the customer, too, because if the customer does not know the exact details of a particular title the shop assistant can automatically match the imperfect version against all of the 25,000 stock items that the system has on a disc.

There is room for a further 40,000 titles should they feel they need it.

The publishers have just started to incorporate bar codes as part of a book's binding – they now use the ISBN (International Standard Book Number), complete with check digit, to produce a unique bar code to form part of the book's cover.

This development has provided Software Sciences and Hudson with a problem because bar-code readers are cheaper and more reliable than OCR readers.

A current OCR book label produced by Hudson shows the ISBN, the price and the location for the book on display in the shop. A bar code which merely shows the ISBN would be a poor substitute, especially for the consumer who has to remember a price when he is called on to pay for it.

The OCR labels that Hudson uses are produced on the Software Sciences system as soon as the books are delivered. A local Z80 microprocessor is accessed via a converted Hazeltine VDU and the system acknowledges the new stock if it has been ordered. In this way over or under deliveries are catered for, and the exact number of book labels is then automatically produced. The checkout statement that the customer receives provides more detail than a standard cash register slip.

As the till is also linked to the Z80, the stock is controlled continuously through the shop.

Helen Scanlon, the shop's manageress, explained that the arrival of the computer helped her staff to devote much more time to serving customers. For example, she had just sold a copy of Celtic Folklore Volume 2 – which is not a best seller – to a customer who was just interested in things Celtic.

Another customer the previous week knew just what he wanted – Guido Cantelli: portrait of a maestro, published by Tantivy Press – and required those details to be entered into the system. Its ISBN was found from a separate microfiche system.

Files are stored on a local 10 Mbyte Winchester disc drive and the day-to-day computer operation is designed to be straightforward.

The staff at the other branch of Hudson in Coventry are keen to get their own system. But it costs over £20,000 and that means more books have to be sold to pay for it.

Another supplier of PoS terminals designed for the smaller shop is MSI. This is an American company and has made substantial sales there. Its design, like Software Sciences, allows for wanded or keyed data, but it has no local computer. Instead, the shop needs to have a telephone link to a central computer in order to process data which has been collected.

Each terminal possesses enough intelligence, however, to allow the user to review previous entries and to amend them if necessary. Storage is in solid state memory which reduces the terminal's weight considerably. Because they are so light they have been put to many uses apart from PoS. Applications that prove most popular include order entry, unit stock control and movement analysis. Independent shops in the DIY, fashion and hardware sectors of the industry have proved the most satisfactory.

One company, Catlands Information Systems, has provided the central computing facility which the MSI terminal needs by setting up a Pet computer to receive Post Office transmitted data.

> **Now that at least one system is economic for every shopkeeper, the consumer can look forward to a further high street revolution to rival the supermarket revolution of the 1950s**

It is slow (4,000 characters in ten minutes) but cheap – prices start at £795 although a typical system would cost about three times that amount.

Two other products, both British, are also available to the independent shopkeeper. They are Data Recognition's Datasport 5 device and a newcomer called Microfin, and both are conceptually similar to the MSI terminal.

Datàport has recently secured a £500,000 order from BAT for gathering data from sales representatives, but Microfin has only been available for some three months and is currently waiting for its first major contract.

Microfin has developed a package, called The Retailer, to provide a computer-compatible record of sales transactions, shelf-reordering, stock taking and data transmission to the host computer. It has developed communication control programs which operate at up to 120 cbps on Data General MicroNovas or Nova 4s, depending on the number of shops.

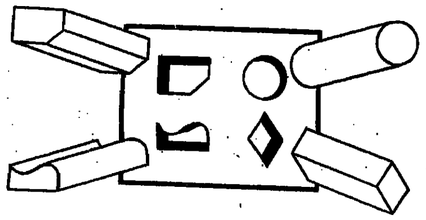
The Microfin terminal clips into a cash register to provide it with the necessary intelligence to make it a point-of-sale terminal. It can be readily unclipped to make it available as a portable data capture terminal. As with the other terminals, input is by keyboard or OCR or bar-code wanding.

Consumer reaction seems favourable to the arrival of new technology in the retail trade. Now that at least one system is economic for nearly every shopkeeper, whether he is in the high value/low volume or the low value/high volume end of the retailing spectrum, the consumer can look forward to a further high street revolution to rival the supermarket revolution of the 1950s.

Nicholas Benwell is a lecturer at the Cranfield Institute of Technology.

Now available as a book £8 post and packing free

DATA ANALYSIS



. . . a method of analysing the operation of a business to allow the best computer system design.

A major reason for the development of costly and inflexible computer systems is the failure to describe the business, its data and how it operates. The Data Analysis methodology is a means of understanding what the business does independently of any consideration of the systems which may be used to computerise parts of it, and for analysing its data independently of the applications to which it may be put.

First published as a major series in Computer Weekly, Data Analysis was written by Rosemary Rock-Evans and based on a methodology developed by Ian Palmer. Now reprinted in book form and fully illustrated, it is available from Computer Weekly. Simply complete the coupon below.

ALSO AVAILABLE

BASIC FILE DESIGN

A brief and authoritative review of file design, covering sequential, indexed sequential and direct techniques. The book is an aid to the busy DP professional who needs to improve the performance of files. It assumes and builds on elementary principles without becoming a full theoretical text.

Reprinted from a Computer Weekly series written by Owen Hanson, senior lecturer in systems analysis, business systems analysis team, City University.

price £1.90 including package and posting.

Please send me.....copies of Data Analysis at £8 each including p&p.
Please send me.....copies of Advanced File Design at £1.90 each including p&p.
I enclose my cheque for £.....made payable to IPC Business Press Ltd.

Name..... Title.....
Company.....
Address.....
.....
Postcode.....
Signed..... Date.....

Send this coupon with your cheque to:
General Sales Dept,
IPC Electrical-Electronic Press Ltd,
Room 208, Quadrant House,
The Quadrant, Sutton, Surrey SM2 5AS.

MICROSYSTEMS'82

IT WORKS!

At Microsystems '81, the formula was right – "excellent" and "very good" was how the quality of visitors and business enquiries were rated by the people who matter – the exhibitors.

Some of their comments:

"High quality of visitors and enquiries. Will certainly attend in 1982!" **Ohio Scientific (UK) Ltd.**

"...a very successful exhibition!" **Micro Scope Ltd.**

"Successful introduction of latest low complexity colour display." **Microvitek Ltd./Bradford Council.**

"Ninety-five quality enquiries." **Seno Systems Ltd.**

"The show was great – it surprised us the first time – it was even better in 1981. The quality of enquiries and visitors asking searching questions was excellent and, better still, they spent big money! Yes, it works!" **Anadex Ltd.**

MICROSYSTEMS'82

6,308

QUALITY VISITORS

The facts speak for themselves

Attendance: 6,308.
Over 2 years,
this represents a 65% increase.

Over 40% of visitors were Directors and Senior Management, and other roles represented were:

Senior Development Engineers
Programmers
Senior Engineers
Chief Planners – Local Government and Government
Operations Managers
Development Engineers
O & M Officers
Design Engineers
Consultants
Lecturers
Project Leaders
Research Managers
Surveyors
Systems Support Managers
Technical Engineers
Chief Engineers
Physicists
Senior Electronic Designers
Senior Software Specialists
Programme Analysts
Systems Administrators
Operations Controllers
Geophysicists
Systems Analysts

The formula is right – the correct balance of USERS – SPECIFIERS – and the people who control their company's expenditure.

MICROSYSTEMS'82

Let it work for you!

February 24-26, 1982
West Centre Hotel

MICROSYSTEMS'82

Where product launches get maximum coverage!

Over 20 exhibitors launched new products or services at Microsystems '81, and these were seen not just by the 6,308 top quality business visitors to the show, but also generated huge interest amongst the press who attended.

Extensive PR coverage before the event ensured the attendance of over 80 journalists. Both UK and overseas publications were represented and among the media who visited were:

BBC Radio 4, BBC TV, Granada Technical Books, Electronic Engineering, Computable (Holland), The Sunday Times, OEM Design, The Economist, Personal Computer World, Electronic Engineering Times, Electronic Times, Process Engineering, Databus (Holland) and Microsystems (France).

OVERSEAS INTEREST!

As well as achieving considerable note from overseas publications, Microsystems '81 was visited by an impressive number of overseas business visitors from 37 countries:

Australia, Austria, Belgium, Canada, Cyprus, Czechoslovakia, Denmark, Egypt, Eire, Finland, France, West Germany, Greece, Holland, Hong Kong, Hungary, Israel, Italy, Kenya, Lebanon, Malta, New Zealand, Norway, Sultanate of Oman, Pakistan, Philippines, Portugal, South Africa, Saudi Arabia, Spain, Sweden, Switzerland, Turkey, USA, Yemen, Yugoslavia.

At Microsystems – the overseas business potential comes to you!

– AND THE UK MARKET TOO!

The big UK-based users and buyers of equipment and services exhibited at Microsystems were there in force, all of them prospective clients – and from organisations such as:

Ministry of Defence, EMI Electronics, ITT, DAF Trucks, Racal-Decca, Plessey, Ford Motor Co., Lloyds Registry of Shipping, ILEA, British Airways, Lloyds Bank, GEC Medical, Mobil Oil, Allied Carpets, Department of Energy, Arts Council, Unilever Research, Metropolitan Police, IBA, Gulf Air, British Steel Corporation, Alfred Dunhill, RAF, British Home Stores, Tesco, British Gas, Colgate Palmolive, BBC TV.

Find out how exhibiting at MICROSYSTEMS '82 can work for you by completing and returning the coupon now, to:

Exhibition Manager, MICROSYSTEMS '82, IPC Exhibitions Ltd., Surrey House, 1 Throwley Way, Sutton, Surrey SM1 4QQ.

MICROSYSTEMS '82 is sponsored by Computer Weekly, Systems International, Practical Computing, Your Computer, Computer Talk, Office Systems, Data Processing and Microprocessors and Microsystems and organised by IPC Exhibitions Ltd.

Please send details of exhibiting at MICROSYSTEMS '82, to:

Name.....
Position in company.....
Company.....
Address.....
.....
Tel No.....

Some DP beings are human

Make a Success of Microcomputing in Your Business. Pannell, Jackson, and Lucas. Enterprise Books. £4.95.

THE trouble with computer books is that many of them appear to have been written by computers.

At last someone has realised that swallowing technical information is easier when it is washed down with jokes, and in producing such a text has managed not to trivialise the content. It is a spirited attempt to prove that some DP beings are human.

Generously illustrated with Punch cartoons (one of which is reproduced here), the book is intended for the bewildered businessman who isn't quite sure what he wants from a microcomputer, or what it will cost him, but is convinced that to own one is a good thing.

The authors unravel and examine irrational fears, explode myths and do their best to ruin the one-off microsystem salesman's most fertile pitch: the ignorant.

"We mustn't feed those questions to the computer. We require answers that are evasive and ambiguous — I'll deal with them."

The existence of unbiased sources of information is also a fact of which businesses may be unaware, and these organisations and their locations are described. To arm the businessman in his system-hunting sorties there are checklists of tricky questions.

To ensure that the potential customer can then understand the answer to his casually-tossed Molotov question, there is a glossary of technical terms in the back of the book which could probably be committed to memory fairly easily.

Enterprise is a new publishing house and can be contacted at 79 Oswald Road, Manchester, M21 9QT.

Maggie McLening

Standard for students of software engineering

Software Engineering Economics. Barry W. Boehm. Prentice Hall. 767pp. £24.40.

THIS text should be of interest to teachers, students and practitioners of software engineering. It would also make healthy reading for computer science teachers and students.

The book consists of an introduction (with case studies, goals of software engineering); the software life-cycle; a quantitative model; fundamentals of software engineering economics (cost-effectiveness analysis, multiple-goal decision analysis, dealing with uncertainties, risk and the value of information); the art of software cost estimation (software cost estimation methods and procedures, the detailed constructive cost model, software cost estimation and life-cycle management).

It would be difficult to praise this book too highly. It is certainly a milestone in software engineering student textbooks. The only student text which is remotely in the same class must be Shneidermans Software Psychology, and that is a complementary text, not a competitive one.

Dr Boehm has managed to combine his gift for conveying key software engineering ideas with his extensive practical background as a software engineering manager at TRW Systems, and his recent one-year break as a guest professor at USC. I predict that many teachers will plan new courses around this book and that it will become a standard in teaching software engineering.

This text has what most other literature in the software engineering and computer science area lacks: a quantitative engineering approach to all subject matter. The approach is further enhanced by its practical and realistic handling of the material.

Dr Boehm is the open-minded teacher par excellence. He makes no attempt to hide weaknesses, even with his own ideas.

In addition to his mastery of purely techical matters, Dr Boehm reveals a strong and realistic sense of the practical importance of the human factor in systems design and particularly in the software producing organisations.

One detail that impressed me was his consistent treatment of the "iterative enhancement" possibility in the software life cycle.

The topics for further research and questions at chapter-end were especially stimulating as learning aids.

Dr Boehm has so carefully criticised his own work that I have little to add to the discussion. My initial inclination was to remind us all that while this text is heavily inclined towards analysing the cost of a given system, the system architect does have the option of designing the system architecture to meet given cost, schedule, manpower and risk constraints.

"Ask not what the cost will be, but how you can design for your cost constraints" is my motto. But Dr Boehm quiets even this modest criticism by his concluding chapter on options to programming and productivity controllables.

Tom Gilb

April 23-25, 1982
Earls Court, London

Bringing computers to life

THE Computer Fair

Personal computers
Home computing
Small business systems

In all walks of life, personal computers have revolutionised computer power — bringing it within the reach of a far wider and more popular market than ever before.

In 1982 this revolution will explode onto the home and personal computer market. To meet this demand, Practical Computing and Your Computer announce a brand new event — The Computer Fair. The promotion of the exhibition will be heavily geared to attract the growing market of potential and existing users of personal computers, from home computer enthusiasts to businessmen.

Bring your computers and services to life — all walks of life — at The Computer Fair!

Complete and return the coupon — we'll send you details.

THE Computer Fair

Exhibition Manager,
THE COMPUTER FAIR,
IPC Exhibitions Ltd.,
1 Throwley Way,
Sutton, Surrey, SM1 4QQ

Name
Position in Company
Company
Address

Guide through the technology jungle

Planning for the Office of the Future. Edit. Alan Simpson. Gower. £7.95 (paperback).

DESPITE the abundance of new technology available for the office, little information has been forthcoming to the average businessman apart from sales brochures.

Impartial consultancy advice can be more costly than the equipment itself, and it is partly this realisation that led to 1982 being designated Information Technology Year. This book is the first of a series entitled The Office of the Future, which aims to be a guide through the technology jungle — beset with fork-tongued jargonese salesmen — at a reasonable price.

Simpson presents a carefully-chosen selection of articles ranging over the whole spectrum of office automation, written by specialists in each field, and encompassing such notably problematical areas as trade union attitudes, and the planning of full-scale computer systems — which should merit a book to themselves.

There is always a danger that this type of book will degenerate into a series of advertisements for the companies whose representatives have supplied a chapter, but Simpson appears to have avoided this trap relatively successfully.

The only section which may be guilty is British Telecom's, which wavers between being an excellent source of detail about its equipment and a coy commercial for it.

A section by Rex Winsley of Fintel does much to unravel the confusion surrounding terms used for viewdata here and in Europe, and to dispel the myth that British Telecom is still leading the field. Ideas that he gives for cutting the cost of using a Prestel may well encourage more companies to participate or at least experiment at a cheaper rate then they could have envisaged.

One minor criticism of this book — and there may be time to rectify this for others in the series — is the dreary cover. Sepia tones in a depressingly unimaginative picture of terminals and desks give the impression that the book was written circa 1950.

Nevertheless, this is certainly worth buying, and it could save the average business some expensive mistakes, and at the back of the book is a useful list of suppliers and an even more useful list of technical terms.

MM

Straightforward look at systems analysis

Basic Systems Analysis. Alan Daniels and Don Yeates. Pitman. £5.95 (paperback)

IT would be a mistake for anyone to assume that they could acquire all the knowledge and expertise necessary for a specialist job by merely reading a book, and yet it is hard to find many aspects of systems work omitted from this volume.

The authors say in the introduction that it is designed to be used as back-up to courses in systems analysis, particularly the one run by the National Computing Centre, but the clearly organised content makes it equally suitable for an instant reference book.

Standard procedures such as fact-finding and interviewing are described in great depth, with accompanying checklists to build up the learner's confidence. Samples are given of flowcharts using different standard symbols, file layouts, system outlines, and other standard NCC documentation.

Methods of monetary reconciliation for financial systems are explained, together with suggestions about how to recover when an error has been detected — usually a task left to the hapless maintenance programmer.

One area of systems design that is always neglected is security and controls, but this book devotes a whole chapter to the subject.

Surprisingly, no mention is made of interactive or database systems, now increasingly common, whose methods of back-up and recovery are necessarily more complex.

For a book which goes into a lot of technical detail, Basic Systems Analysis is straightforward and easy to read, and would be ideal for students and non-DP managers who want to see how the implementation of a computer system will affect them.

MM

Kevin Cahill reports on a fast-moving company set up in Britain only a year ago by the Finnish mini manufacturer

Rush of orders spurs Nokia UK in Europe

A CLUTCH of orders, including three standalone VDU units for BBC radio newsreaders, has given the new year a bright start at Nokia UK.

The UK company is a subsidiary of one of Finland's largest conglomerates, Nokia Oy, and opened shop in London early last year.

With the first major network based on the company's Mikko minicomputers sold to British Tissues just before Christmas; a standalone system using a 10-Mbyte Mikko 308, the biggest in the range sold to Ibex; and 40 terminals, including two word processing systems, on order, managing director Mattei Heikkila is optimistic.

He says that the company will be announcing many more orders within three months, and he is currently actively recruiting staff to cope with the business.

Nokia and the Mikko computer are of course much better known in the company's home base, Finland. In fact, it is something of a surprise to most observers to discover that a country as small as Finland, with a population one-thirteenth the size of the UK's, should have a computer industry at all.

But the electronics division of Nokia is the oldest electronics company in the country, having been set up in 1960 by Kurt Wicksted, the current vice-president of the electronics division. He proudly guides visitors to a graph plot on his Mikko desk terminal which shows ten years of consistent 25% to 30% per annum growth in the electronics and computer division of the company.

This is in sharp contrast to the fortunes of the parent company, Nokia Oy, which is primarily a wood, heavy electrical and rubber firm. As such it is prone to the sharp recessionary swings in the international economy, particularly those of the last decade.

Nokia Computers is currently active in Canada, Sweden, Germany, the UK and the US, according to Wicksted.

He further noted that encouraged by the results in the UK, Nokia would be making a very aggressive drive on Europe, including Holland and Switzerland.

The company is strong in three areas — banking, point of sale and minis — which have given it a large home user base with which to develop.

There are over 1,500 Mikko microcomputers scattered around the branches of Kop Panki, one of Finland's biggest banks.

The country is thinly populated and this distributed population drove Nokia into real time systems very much ahead of many companies (though one exception was its neighbour in Sweden, Datasaab).

Another major system which helped increase Nokia's expertise in real time and online processing is the one it developed for the 470 shops of the State-controlled liquor chain Alko.

The first machines in the Alko network were installed in 1974/75, the year after the company started producing the Mikko 1, which was designed by Heikkila.

Each Alko shop has a point-of-sale terminal which records sales and products sold by a numbered code. Inside the office in each shop is a Mikko minicomputer which registers the sales, controls the stock and plans the re-order levels.

The system is extremely simple and produces output for the local shop manager in the form of a tally roll summary of activity in the branch.

Re-order details and stock levels are transferred to central warehouses at regular intervals over the phone lines.

Heikkila, the product manager for the PoS group, says that while the company cannot be a mass supplier of terminals, it is focusing on the overall design of the workstation and the system as the path of future development.

The implication is that Nokia will concentrate on the electronics and the software, but rely on an outside contractor, possibly a Japanese supplier, to build the actual PoS unit.

The company is known to be well advanced with a series of new microprocessor boards based on the latest chip technology, including 64K chips. These new boards are expected to form the core of, the company's triple product drive, in PoS, banking systems, and micros and terminals.

To back up the development drive Nokia has built and recently started PCB production at a new 170,000 sq ft facility at Cilo, near Helsinki. Local electronic design experience is tapped directly and the company uses Racal Redac computer-aided design equipment with Calma software to eliminate the long delays inherent in PCB production.

Prior to the opening of the new facility, which is one of 10 such factories in Finland, the company had many of its printed circuit boards produced in Norway.

The plant, which has cost £5 million so far, and is scheduled to be in full production this year, is managed by Anja Rouhiainen, who says that the company now employs 20 layout designers and 70 people in the actual PCB production.

Backing up this team is a group of 25 engineers, chemists and physicists, representative of the range of skills needed to keep a full PCB line going.

The eventual target of 15,000 sq ft of boards suggests that Nokia has plans to grow substantially in the next few years.

ICL is planning to use 75,000 sq ft of PCBs for what will be a £1 billion company soon, so Nokia would seem to be targeting a turnover of about £200 million, 100% up on its current £100 million.

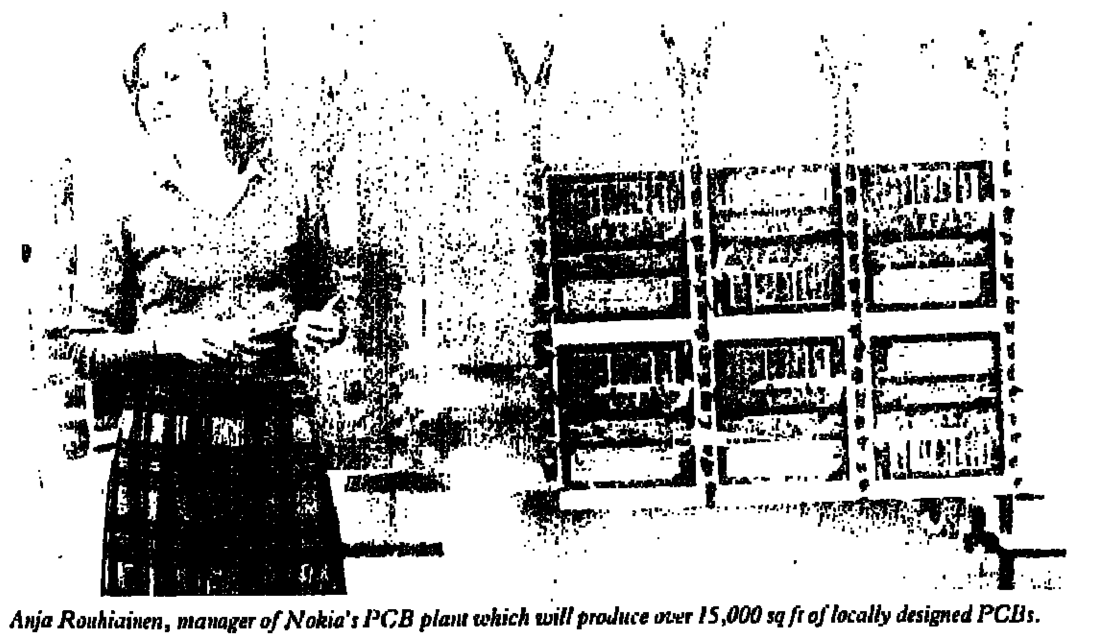
Behind the PCB plant lies a connection with Silicon Valley. Nokia is the 58% shareholder in a small California micro-chip company called Micronas. The other shareholders are Finnish TV company Salora and the electronics group Aspo.

The primary function of Micronas is to help the Finns gain experience of advanced chip design, using the latest techniques available.

Within the Micronas connection Nokia has established a stake in another Californian venture called Micro Power Systems. This company is 60% owned by Japanese company Seiko and specialises in CMOS and bi-polar analogue to digital converters, for use in modems and similar equipment.

The problem now, according to Micronas president Pauli Immonen, as he sat looking into Finland's snow-laden winter, was how to get his engineers back from the sunshine of California.

Finally, Matti Heikkila says that Nokia will be investing heavily in software. He has already begun to use UK software experience in conjunction with the Nokia software subsidiary Sofplan, to develop and redevelop application level software with the Mikko system.



Anja Rouhiainen, manager of Nokia's PCB plant which will produce over 15,000 sq ft of locally designed PCBs.

Pauli Immonen, president of Nokia's Californian subsidiary Micronas, wonders how he is going to persuade his designers to come back to Finland after two years of Silicon Valley sunshine.

A customer buys his bottle of Finlandia vodka in a State-owned liquor store, and one of 1,200 Nokia terminals scattered around the 470-shop chain records the sale, alters the stock and prepares the re-order schedule.

SOFTWARE MONTH

COMPUTER WEEKLY'S SOFTWARE SUPPLEMENT

Computer Weekly was the first general computer journal to give software its own space when Software File was introduced for weekly news reports. Now the time has come to expand the coverage further.

Edited by our Software Editor Claire Gooding, Software Month will devote its whole coverage to one subject each month. The topics are listed below.

But included each month will be a news round-up, highlighting important events of the past month, and a column by consultant David Ferris on the increasingly important business side of software and the companies which market it.

PROGRAMME FOR 1982

February 25: Annual software review
March 18: Networking software
April 22: Database
May 13: Financial and project planning
June 10: DEC systems
July 15: Payroll packages
August 12: Integrated Office software
September 9: Program productivity — program generators and high-level languages
October 7: Word processing
November 4: City software
December 2: CAD/CAM and scientific software

● For advertising within Software Month contact Gordon Bradley, 01-661 3500 ext 3572.

PLESSEY
THE CENTRE OF PERIPHERAL SYSTEMS

PDP-11/24* and PDP-11/44* systems available now from stock.

Backed by the comprehensive Plessey after-sales service

*Registered trademarks of Digital Equipment Corp.

PHONE US FOR A QUOTE

PLESSEY PERIPHERAL SYSTEMS
Plessey Peripheral Systems Limited, 3 Harrowden Road, Brackmills, Northampton, United Kingdom NN4 0EB.
Telephone: Northampton (0604) 6515 | Telex: 312254
Tolworth, Surrey (01) 330 1421 Manchester: (061) 872 0248

Get the message.

PRIORITY · TEAMCO NOW
IN CENTRAL LONDON +++
ON SITE AND REMOTE
FACILITIES + VM/CMS +++
DOS ++ LINK TO MVS +++
CONTACT IMMEDIATE ++

Teamco EDP Limited,
30, Cursitor Street, Holborn,
London EC4 1LT.
Telephone 01-405 9125
TEAMCO

Interactive terminal has colour graphics

TO meet the growth in the microcomputer market for both personal and business use, RCA has introduced an interactive data terminal, the VP-3301.

Available from the Alpha-Numeric Division of Norbain Displays, the terminal is said to be suited to a variety of industrial, business, educational and personal applications requiring interactive communications between user and computer.

The terminal features standard RS 232 asychronous interconnect, flexible membrane key switches with aural feedback, high noise immunity CMOS circuitry for hostile environments, programmable and resident character set and reverse video facility for single character or multiple character emphasis.

With a baseband video output that can be directly connected to a 525 line colour or black and white video monitor and 625 line under development, the VP 3301 offers a terminal with technical features designed to keep in the forefront of a growing market, says Norbain.

The character display format, 40 characters by 24 lines or 20 characters by 12 lines, is software selectable. Each character or all characters may be displayed in one of eight colours (or grey scales on B/W display). Display background may be one of eight colours (or grey scales). There are 125 resident displayable characters or the user may define his own from Greek letters to playing card suits.

Aural feedback is by means of a built in tone generator which can be programmed for end-of-line bell, error messages or even music.

Norbain Electronics Ltd (CW), Norbain House, Arkwright Road, Reading, Berks. RG2 0LT. Tel: (0734) 864411. Telex: 847203.

Electronic typewriter and terminal combined

DESCRIBED by Duplex Communications as "the electronic typewriter that is also a communicating terminal," the Octet 121 is now on the market.

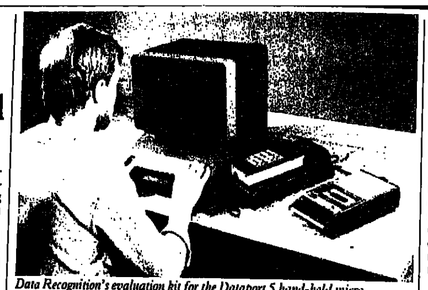
This comprehensive peripheral has a 4K character memory with battery back-up and an integral text editor. It is also claimed to be a true KSR with standard features for OS use.

The Octet 121 will link up with most micro, mini and mainframe RS232 computers and can also produce telex tape from a remote punch unit as well as accepting telex tape reader input for fast telex message handling.

It will link up with another Octet 121 to transmit and receive data from a remote office, and may also be used as a typewriter when not required as a terminal.

Installation is simple and the Octet 121 is adaptable to most business situations, it is claimed.

Duplex Communications (CW), 2 Letre Lane, Dunton Bassett, Nr Lutterworth, Leicestershire. Tel: (0455) 209131.



Data Recognition's evaluation kit for the Dataport 5 hand-held micro.

Kits for under £1,000

A RANGE of a evaluation kits (with prices starting at less than £1,000) has been announced by Data Recognition for its battery-powered Dataport 5 family of portable electronic offices.

The Dataport 5, a compact programmable microcomputer-based data capture device, incorporates fully customised alpha-numeric keyboard data entry facilities, an integral 32-character display, 132K of character storage, and a unique full-duplex V24 high-integrity data communications capability which, says Data Recognition permits interfacing to almost any computer, and downline program loading, via a modem.

It is styled like a pocket calculator and can be carried in a briefcase. Its applications lie in marketing and sales, field service engineering, distribution monitoring and control, inventory and stock auditing, production and quality control, van sales, meter reading, maintenance engineering and the like.

Data Recognition (CW), Unit 18, Suttons Industrial Park, Earley, Reading, Berks RG16 1AZ. Telephone: (0734) 664577.

Support for IBM printers

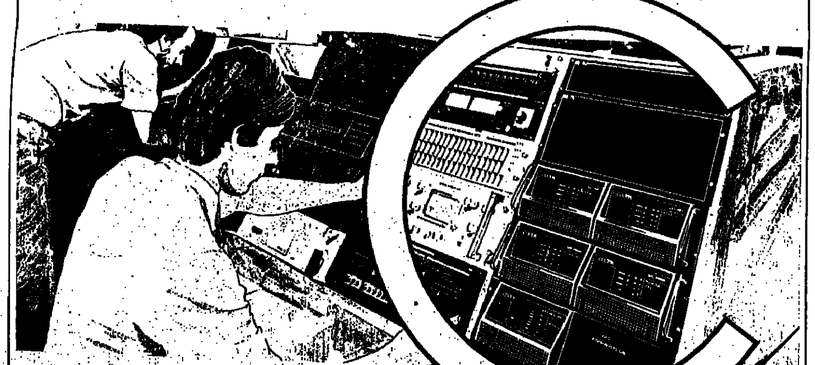
AN adapter, the Model A512, has been added to Tesdata's Hyperchannel high speed networking system. It is the second in a series of remote device adapters and is designed to support the interconnection of high speed IBM printers to the Hyperchannel network.

The A512 allows 1403, 3211 and 3800 printing systems to be placed at distances of up to 5,000 feet on a local network, and up to 25 miles (via A710 link adapters) from the user's central computer with minimal loss of performance. The printers operate as if they were natively attached to the data channel and essentially provide a channel extension to allow the remote placement of locally attached peripherals.

The A512 follows the Model A510 remote device adapter which supports remote attachment of local IBM 327X terminals and tape drives on Hyperchannel networks.

Tesdata Ltd. (CW), Tesdata House, Hatfield Road, Slough, SL1 1RL. Telephone: (0753) 71961.

If what you want is maximum modem for minimum money,



you want Codex LSI 96/V.29

This powerful and proven modem fills the bill largely through economies of scale. The Codex LSI 96/V.29 is manufactured and distributed to a vast customer base throughout the world.

Codex technology ensures that its performance and reliability more than live up to the demands your system makes – reliably transmitting data at high speeds and maintaining national and intercontinental data links with ease.

The LSI 96/V.29 conforms with the International Standard CCITT V29 recommendation and Codex compatible mode using Codex's unique QAM modulation. Normally operating at 9600 bps, it will fall back to 7200, 4800 or 2400 bps to maintain operation when the line degrades. Yet it is compact, lightweight and very reasonably priced. You can obtain complete details merely by writing "LSI 96/V.29" on your letterhead or business card and posting it to Codex (U.K.) Limited. Or, of course, by telephoning.

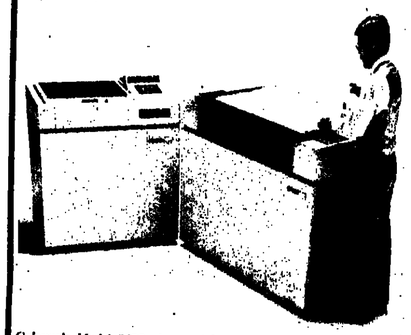
Codex provide a complete range of integrated communication products, including Statistical Multiplexers, High, Medium and Low Speed Modems, Intelligent Terminals, Network Control and Management Systems, Data Security Systems, Voice Digitizers, Technical Control facilities, as well as a broad range of network enhancement products.

Codex (U.K.) Limited, 105 Landsdowne Road, Croydon CR0 2BN. Telephone 01-680 8507

codex

WE'LL GET YOU THROUGH

Codex (U.K.) Limited is a subsidiary of MOTOROLA LTD.



Calcomp's Model 5500 plotter (right), designed for CAD/CAM, and the Model 953 (left).

'Big step' in plotting

GRAPHICS systems manufacturer Calcomp has announced two additions to its line of pen and electrostatic plotting systems – the Model 953 vector-raster controller, for use with both types of plotter, and the Model 5500, a 36in wide, high resolution plotter/printer.

The company says the Model 953 represents a major step forward in plotting technology as it is the industry's first vector-to-raster controller capable of driving both pen (vector) and electrostatic (raster) plotters.

The significance of this says Calcomp is that it eliminates the need for separate vector and raster software in the host computer, separate vector and raster processors or separate vector and raster plot files for given plots.

Calcomp claims that the 953 will be particularly appropriate for the growing number of instances, for example in CAD/CAM and mapping, where both electrostatic is being used for the rapid output of check plots and the pen plotter for final high quality archival drawings.

Prices for the Model 953 start at about £17,000.

The Model 5500 represents the top of a range comprising seven different models for 11in, 22in and 36in wide output. It has been designed for applications where the requirement is for the very high speed output of large-scale drawings, such as those required in oil and gas exploration, mapping, LSI and VLSI electronic circuit design and other CAD applications.

Calcomp Ltd (CW), Corf House, The Ring, Bracknell, Berks. RG12 1ER. Tel. (0344) 50211. Telex: 848949.

Addition to range

AN addition to its Stabilac range of line voltage conditioners is announced by Claude Lyons Ltd. The LVC-65 is designed for use with personal computers to ensure trouble-free operation by regulating the supply voltage and removing damaging voltage spikes, transients and electrical noise.

The LVC-65 is fitted with a 3-core input cable, 13A socket outlet, mains neon indicator and fuse protection, as standard.

Claude Lyons Ltd (CW), Hoddesdon, Herts EN11 9DX. Telephone: (09924) 67161.

Wider printer interfacing

NEW versions of the latest Centronics 6080 printer family with different built-in interfaces are being offered by Bytech. Initially the interfaces will allow connection of the 600 lpm printers to Data General, DEC and IBM equipment.

These printers are being called the LP Series, and after delivery will be commissioned and fully supported by Centronics' own field service organisation.

Bytech Ltd. (CW), Unit 57, Suttons Ind. Park, London Road, Earley, Reading, Berks. Tel:0734-61031

PRODUCTS-2

UK launch of Philips message switching family

THE Philips DSX-40 family of message switching systems has been launched in the UK by Philips Business Systems. Designed to automate traditional telex operations, DSX-40 can carry text and data traffic. It is intended for use by those companies with as few as two telex lines who are seeking to update and improve their telex operation, and larger multinational concerns which are looking to establish networks and integrated systems.

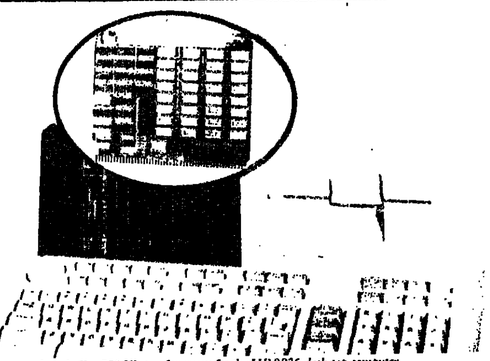
The microprocessor-controlled system can handle up to eight telex lines and 32 ports for access to the system. These can be office teleprinters, teletypes, word processors or other data terminals, which can be located in one building or throughout regional offices.

Each of these ports can have satellite terminals. The system operates in two modes: Dialogue – where communication is in real time, like the conventional telex; and store-and-forward – where information is stored in the system's memory and forwarded as and when necessary.

Many of the ports which can be linked to DSX-40 have no common language and operate at different speeds, so the system has a speed and code conversion facility. This enables the transmission codes and speeds of incoming messages to be converted as necessary and forwarded without operator intervention.

All these facilities are designed to improve the efficiency and speed of the telex and to provide optimum and economic utilisation of telex lines, says Philips.

Philips Business Systems (CW), Communication and Control Division, Cromwell Road, Cambridge CB1 3HE. Tel: (0223) 245191.



WKBP-4 memory board offers 256 Kbytes of memory for the HP 9826 desk-top computer.

'Quadruple' memory for desk-top

MEMORY of 256 Kbytes is available on a single board for Hewlett-Packard's 9826 series desk-top computer from Protek. The new board offers greater memory capacity using fewer card slots, claims the company.

Each WKBP-4 board provides four times the capacity of the 64 Kbyte standard boards, so the user can plug in an ample amount of memory without tying up more than a small number of the computer's eight card slots.

For example, you can use HP's ROM-based Basic, which takes two slots, and one or two WKBP-4 boards for 256 Kbytes or 512 Kbytes of memory and still have four or five slots free for RS232, I/O and peripherals.

The price is £1,400, delivery is two weeks and the product is warrantied for a full 12 months.

Protek Electronics (CW), 115 Alderney Street, London SW1V 4HE. Tel: 01-834 3602.

'Soft' VDU emulates other terminals

THE Dataview Displaymaster, a Z80-based "soft" VDU terminal that can be user-programmed to emulate most other conventional products, is available from ISG Data Sales.

It has a detached keyboard, extra-wide green phosphor display, 132 and 80 column format, 16 soft programmable function keys, 16 Kbytes of display memory (over 8 pages), screen highlighting, block mode, line graphics, screen editing numeric keypad and 128 Ascii characters.

To emulate another terminal a set-up map is displayed and options typed in on a menu basis. The set-up characteristics can then be stored in non-volatile memory. Alternatively, the set-up conditions can be down-loaded from the host computer.

ISG Data Sales (CW), Unit 9, Fairacres Industrial Estate, Dedworth Road, Windsor, Berks. Tel: Windsor 57955/56.

Software development station has 64K RAM

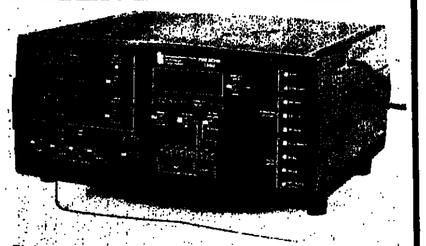
THE Mostek Software Development Tool is available from Celdis at £2,289.

Housed in a cabinet measuring 188 × 483 × 540mm and known as the Mostek Matrix-80/SDT, the system employs standard Mostek MDX boards and comprises a 4MHz Z80 processor with appropriate interfaces, 64 Kbytes of RAM and one eight-inch single density floppy diskette drive providing 128 Kbytes of online disc storage expandable to 512 Kbytes.

The SDT is intended purely as a software development station and so does not support in-circuit emulation. It is supplied with Mostek's FLP-DOS operating system, which has been modified to support disc copying and disc formatting on a single drive.

CP/M will be available as an option. Also included is a Z80 Macro assembler, a linking loader and standard editor. A full screen editor, for use with approved video terminals, is available as an option.

Celdis (CW), 37 Loverock Road, Reading, Berks RG3 1ED. Tel: (0734) 586191.



Fireberd 1500, portable digital error analyser.

Data error analyser

THE Fireberd 1500 data error analyser is the first product in a range of data communications test equipment to be marketed in the UK by Codex for Telecommunications Techniques Corp (TCC) of Maryland, US. It costs about £3,000.

It operates on data rates of 300 bps to 10 Mbps, while internal clocks include all the standard rates from 1200 bps to 56 Kbps. The unit generates and accepts eight standard data patterns, and performs arithmetic, timing, display and interface functions.

Fireberd's interface for the RS232 output printer is incorporated within the unit. An integral self-test capability is included as standard. The IEEE-bus can be added as an optional extra. Other options include a thermal printer and magnetic tape data logger.

Fireberd 1500 can be used for most data circuit testing applications, says Codex.

Codex (CW), 105-107 Lansdowne Road, Croydon CR0 2BN. Tel: 01-680 8507.

Iris expanded for OEMs

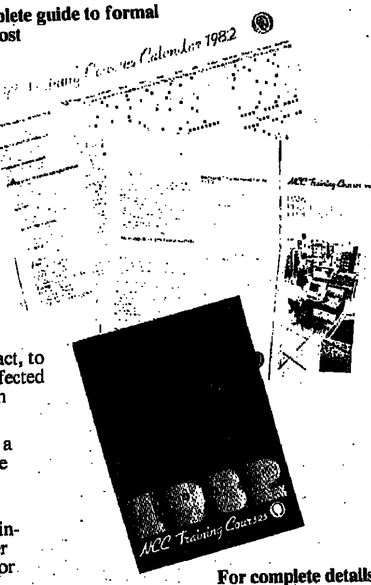
AN addition has been made to Micro Consultants' Intelligent Remote Instrumentation System modular multiple microprocessor-based monitoring and control family.

Designated Level O, the system now comprises the I/O hardware of the standard Iris range with a parallel interface for DEC minicomputers. Designed for use in industrial and research laboratory environments, Level O forms an expandable measurement and I/O front end for DEC OEMs and users with existing computer facilities.

Iris Level O front end hardware can be configured to provide for any mix of random or group structured digital and/or analogue channels from as few as 32 on a small pilot project, to 1024 in a larger processing environment.

Micro Consultants (CW), Kenley House, Kenley Lane, Kenley, Surrey CR2 5YR. Tel: 01-668 4151.

NCC Training Courses 1982 **is the complete guide to formal training from the UK computing industry's most experienced independent provider of courses.**



This comprehensive 44 page brochure describes in detail over 190 scheduled public courses on 35 different subjects available this year from NCC. They include comprehensive up-dates of authoritative courses developed over thirteen years of practical training experience, and six major new introductions into our training programme.

Among them are courses in programming and project management, real-time computing and word processing, data communications and database, systems analysis and computer audit — courses, in fact, to meet the needs of everyone working with, affected by, using, planning for, or starting a career in computing.

But NCC Training is much more than a schedule of courses. It is also a highly flexible means of tailoring training to specific needs.

Most courses, for example, can be personalised for your organisation and held in-house. The brochure gives details of a further twelve courses which provide a framework for this type of customised training. It also points out the relationships between different courses and includes a full 'at a glance' Course Calendar to help in scheduling individual training programmes. And NCC Training is backed by experienced consultants who are available to advise and to help plan the content and timing of training exactly matched to your requirements.

NCC Training — your key to more effective computing

For complete details of how NCC can satisfy your training needs, send for your copy of *Training Courses 1982 today.*

NCC Training

NCC TRAINING

Ian Ryder The National Computing Centre Limited
Oxford Road Manchester M1 7ED Telephone 061 228 6333

I would like further information on NCC Training:

Name _____ (Block capitals please)

Position _____

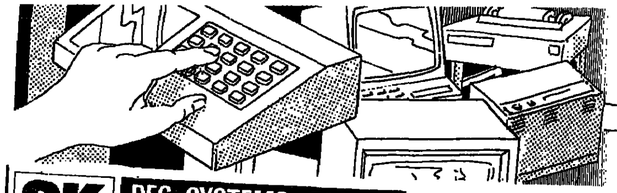
Organisation _____

Address _____

_____

_____

Telephone Number _____ NCC CW 1/82

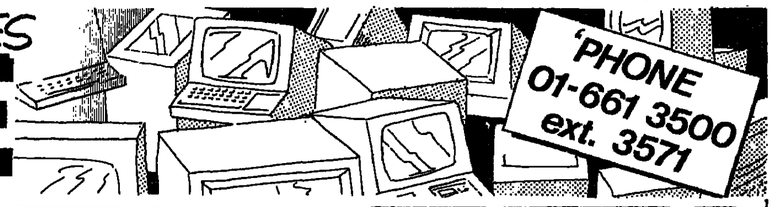


CONTACT XENIA WHITE —

MARKET

FOR ADVERTISING RATES

PLACE



'PHONE 01-661 3500 ext. 3571

SK Computer Systems Limited

DEC® SYSTEMS FAST!

ST. MICHAEL'S HOUSE
NORTON WAY SOUTH
LETCHWORTH, HERTS SG6 1PB

- PDP® BASED COMPUTER SYSTEMS
- FULL RANGE OF SOFTWARE
- PER CALL OR CONTRACT MAINTENANCE AVAILABLE
- WIDE RANGE OF DEC® COMPATIBLES
- TEL: 04626 79331 TELEX: 825647

04626 79331 DIGI-DATA

® DIGITAL EQUIPMENT Co

systems and compatibles in stock

- FAST DELIVERY
- ENGINEERING
- FULL SERVICE
- SOFTWARE SUPPORT

FAST DEC!™

DEC® BASED SYSTEMS AND SUBSYSTEMS

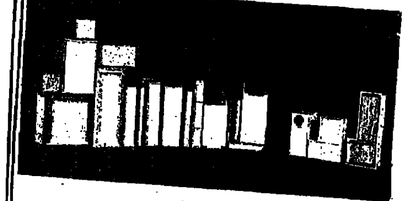
■ PDP–11/24, 34, 44, 70 ■ VAX–11/750+780
■ DISCS FROM 10MB TO 256MB ■ TERMINALS
■ PRINTERS FROM 30CPS TO 900LPM ■ MAGTAPES
■ MEMORY ■ INTEGRATED OR ALONE ■ MAINTAINED

FULLY COMPATIBLE PROVEN PRODUCTS INSTALLED FAST AT COMPETITIVE PRICES!

SYSTEK LTD, HR HOUSE, HIGH ROAD, NORTH FINCHLEY, LONDON N12 0AZ.
'PHONE 01-349 2911 TLX 8952836

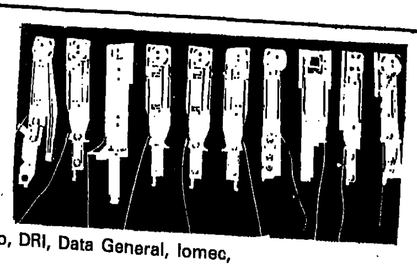
™® REGISTERED TRADEMARK OF DIGITAL EQUIPMENT COMPANY

SYSTEK SYSTEMS ARCHITECTS



PRODUCT LINE:

New Magnetic Heads
Refurbished Magnetic Heads
Air Filters
Disc Drives
Fixed Platter
Magnetic Tape Heads
★ Disc Drive Repair



Ampex, CDC, Caelus, Calcomp, Diablo, DRI, Data General, Iomec, Pertec, IBM, Wangco, Memorex, ISS.

Computer Parts & Accessories Limited
44 Masons Hill, Bromley, Kent 01-464 7227 Telex: 896559

Computers Bought and Sold

FOR SALE
All DEC PDP8, Modules, Memory, Peripherals
ICL 2970
Hewlett Packard HP3000
NCR 8250.

WANTED
Philips P330, T1990
IBM 3747
HP7925 S
DEC 11/45
ICL 10/220

E O B LIMITED
Tel: 0783-44777
Telex: 537763

WANTED
IBM/ICL REDUNDANT/OBSOLETE COMPUTERS
Rayhold Computer Services, Unit 12 West Station Industrial Estate Bridal Road, Maldon, Essex Tel. Maldon (0621) 54068

WANTED

Scrap computers, any condition. Also panels, plugs, sockets, boards, etc.

City Surplus
36 Slater Street
Liverpool, L1 4BX
Tel: 051-847 4567

BUY SELL TRADE DEC PDP11

PDP11/40 System 256KB Core 3 × RPO3 + Control
LP11-VD Printer DH11-AA 20MA Some disc packs

£7,200

Dectrade Ltd
Network House, 20 Ludlow Hill Road
West Bridgford, Nottingham
Tel: 0602-232265 Telex: 377678 NETWRK

DEC SUPER SALE
2 × RK06J-BB DISK DRIVES
Excellent condition
£995 each
Tel. 01-686 0255

WANTED

Scrap computers, any condition. Also panels, plugs, sockets, boards, etc.

City Surplus
36 Slater Street
Liverpool, L1 4BX
Tel: 051-847 4567

Low Cost Number Crunching

UNIVAC 1100/81
off-peak batch 7pm to 8am
Monday to Friday

£400/hour

For details of configuration and access phone Phil Senior on 0742/71201

Davy Computing Ltd
A Davy Corporation company

Head Office: Moorfoot House, Clarence Lane, Sheffield S3 7UZ, England Tel: 0742-71201 Telex: 54184
London Office: 8 Headstone Road, Harrow, Middx, HA1 1PD Tel: 01 861 0811 Telex: 8955912

DEC and DATA GENERAL
Buy, Sell or Trade
Sample of Items Immediately available

- D.B. Expansion Chassis
- PIT
- 1144 Cabinet
- H950 Cabinet
- MM8-EJ
- RK05-J

Call: Alastair Dods, 01-467 1985 or 01-467 8489
Thomas Business Systems, Ltd

Walmax Metals Ltd
COMPUTER DISPOSAL SPECIALISTS
Redundant computers purchased.
Professional removal service.
Annandale House, West Heath Avenue, London NW11 7QY. Tel: 01-458 8621

PROPHET PLUS

A new financial modelling system operates across the DEC range.

Prices from £1,500 for RT11.
For brochure contact: Contractline Limited 01-638 7401

APL for T1990

Contact:
M. Merlin
01-969 6333
01-464 9637 evenings
General Software
22 Russell Road
Northolt, Middx

The lowest prices in Britain?

Check our prices for

LA34 LA120
VT100 WD78
SERIES WORD PROCESSOR

AND ALL OPTIONS

- OFF THE SHELF DELIVERY
- NATIONWIDE SERVICE

MCS
269-271 Barlow Moor Road, Chorlton-cum-Hardy, Manchester M21 2GJ
Tel: 061-861 0757 Telex: 667151 MCSG

WHY RE-INVENT the WHEEL?

Application Software Development is expansive!
"Well documented CPM package for ESTATE AGENTS.
Now available.
* Structured & Portable.
Full details from Box No. 1189.

WANTED
ICL 2903

Ring Carol Wright
0203 555222

APL for your VAX®

Phone Paul Clark on
01-242 8135
APL Plus Ltd., 50 Chancery Lane, London WC2A 1HL

DEC FOR SALE

New and reconditioned.
VT55 Graphics Terminals from £600 each
VT52AB from £450 each
Contact: 01-686 0255

NEW/USED COMPUTER EQUIPMENT
BUY OR SELL THROUGH
SAMPLE UNITS AVAILABLE FOR SALE.

Burroughs B600 Systems – NCR 8130, 8250 Systems
IBM 2348 Data Modules – IBM 5251 Mod 11s
IBM 6262 Mod 1 40 cps Printer, Mod 3 120 cps Printer
Forms Handling Equipment – IBM C29129 Card Punches
LA34, LA120 DecWriters – most manufacturers' systems available on request

WDP

NEW DE LUXE 80 COLUMN HAND PUNCHES IN STOCK

WDP
01-464 9011
TELEX 896559

WEBSTER O P SERVICES LTD
65 WIDMORE ROAD, BROMLEY
KENT BR1 3AA

DEC*
AVAILABLE FROM

LAMBART

DEC	DEC Compatible
1144 Based Systems	LM02/3 CDC 9762 + Controller
1126 Based Systems	LM05 CDC 9766 + Controller
VAX Based Systems	LM150 CDC 160MB + Controller
1134A Based Systems	LT45X 45 ips MTU + Controller
RM03 Disc Drives	LT15X 75 ips VACC MTU + Contr.
RL02 Disc Drives	VAX780 Memory
DV11 Sync/Async. Mux	1134/44 EC ECC Memory
DMC11 Network Link	LMQN1 QBus to Convorter
DL11-W Controllers	DZ11 16 Channel Mux
11780 Memory	LS-300 300 LPM Band Printer
1144 Memory	LS-600 600 LPM Band Printer
Other DEC Peripherals	LTM100 Micro Streamer

COMMUNICATIONS SOFTWARE AND HARDWARE SUPPORT AVAILABLE

LAMBART COMPUTING
52 Moorbridge Road, Maidenhead, Berks SL6 8BN
Tel: 0628 72037. Telex: 848635

LOW* PRICE — FAST DELIVERY

* Reg. Trade Mark of Digital Equipment Co. Limited

You'll never get new PDP11/60 systems at this price from Digital again!

Our ex-stock systems include PDP11/60 processor, dual cabinet, 256 Kbytes MOS memory plus 2Kb cache memory.

Hardware floating point processor (FP11-EB).

RSX11M V3.2 operating system & Fortran 77 language compiler (unsupported).

Full Digital installation, 90 day on site Digital warranty and delivery.

LA120 console terminal and choice of disks/tape.

SUPER FAST SYSTEMS
SUPER LOW PRICES
System:

with dual RK06 (28 Mbytes)	£14,950*
with dual RL02 (20 Mbytes)	£19,950
with dual RK07 (56 Mbytes)	£29,950
with RM02 (67 Mbytes) and TE16 tape drive	£39,950

*No software or floating point processor is offered with this package.

The PDP11/60 was introduced by Digital as a very fast processing system for scientific and technical "number crunching" applications. It is still one of the fastest PDP11 family computers available. Benchmark tests, including Whetstone, show that the PDP11/60 has processor performance characteristics equivalent to 85% of a similar configured PDP11/70 system in heavy floating point calculations and approximately 80% in an average mix of fixed and floating point.

For further information telephone Mike Molloy/Bill Sellers on 0734 594220.

Digital Equipment Company Limited
252-256 Kings Road, Reading, Berks, RG1 4HS.

digital

APPLECASTLE LTD
for
ALL NEW AND USED COMPUTERS
FOR SALE

Burroughs B700, Burroughs B800, HP9846B, HP250, HP3000, HP9830, IBM MC82, ICL1900 + 1903A + +, Perkin Elmer Interdata 816, PDP 11/34 + RK07s, Vector Graphics & QD Drives, Ventec 1532, Apple Cards, Diablo Printers.

WANTED

Apple II, HP85, PDP 11/45, 10MB HP Disc Drives.
Phone: 01-837 5277 (12 lines)
Telex: 299230 IF CENTG

KIRBY (AIR CONDITIONING) LTD

TO SUIT YOUR ENVIRONMENTAL NEEDS

QUOTES

BOURNE END, BUCKS.
06285 27878-9

UNIVERSITY OF EXETER

For Sale by Tender

Univac 1710 Card Punch Verifiers
CD22 Card Interpreter
ASR33 Teletypewriters
Closing date 10 March 1982.

Contact Mr R. W. Palmer. Telephone Exeter 77911 ext. 797 or 721 for further information.

HONEYWELL BULL USERS

'Cynthia' Cartridge Discs for D120/D140 Drives.
In Stock!
Plus other computer supplies.

Contact: Terminal System Services Ltd., Derby (0332) 883333.

CHILTERN
BRAND NEW SURPLUS DISK DRIVES
All complete with manual in original boxes, dated 1979/80.

DNI 22.5 MEGABYTE CARTRIDGE
Successor to famous DRI Series 30, these double density drives will emulate two 2.5 Mb drives on a single 2.316 type cartridge.
Interface compatible with DRI-30, RK05 etc.
Controllers available for LSI-11, PDP-11 and 8-100 bus.
Usual price over £3,000. Our price £4201

DRI 7206 FLOPPY DRIVES
Top quality double-sided single or double density floppy disk drives giving max. 1.6 Megabytes unformatted per drive. Plug compatible with Shugart, etc. Extremely high engineering standard.
Only £256 or two for £480.

SECONDHAND BARGAINS

DRI-4000/Diablo 40 Disk Drives 5 + 5 MBytes	£480
PERTEC 8Tr 1600 bpi Magtape with formatter	£660
PERTEC 9Tr 800 bpi Magtape	£390
DATAPRODUCT 2230 300 lpm Line Printer,as new	£880
PDP11/05 16K large chassis	£700
PDP11/60 Chassis, frame, CPU and memory. New	£1,100
PDP8E 16K Processor	£480
TA11 + Unibus control	£560
PDP8A 16K + OP	£1,000
Kennedy 9700 MT Tape	£960
VT201 Colour Graphics Card + Unibus/LSI Control	£450
DEC 4ch A/D PDP11	£480
DEC BA11KF Box	£500

Thousands of other DEC cards in stock. Please telephone for list. Above prices exclude VAT and carriage.

CONTACT NIGEL DUNN ON 0494 714483

Electronic Brokers

£1million DEC SALE

PROCESSORS

PDP8A-20E-8R-32KW MOS (new)	£1,750
11/03-LJ5¼", 32KB MOS (new)	£1,600
11/40 96KW Core, KT11D, 8ft. Cab	£4,750
11/45 32KW Core, 4ft. Cab	£9,850
11/70 512KB MOS, 2 Cabs, VT100	£30,000

PERIPHERALS

LA11 DECprinter 1 and ctl	£820
LA35 RD DECwriter 11 30mA	£250
LA36 RD DECwriter 11 E1A	£275
LA36 KSR DECwriter 11 20mA	£480
LA36 KBR DECwriter 11 E1A	£495
LA180-PD DECprinter 1 parallel	£495
LA180-ED DECprinter 1 and E1A option	£570
LP04 1250 lpm Printer & ctl (NEW)	£5,750
LP11-VD 300 lpm Printer and ctl	£2,750
PC11A Reader Punch and ctl	£1,250
PR11 Reader and ctl	£625
TE10M 9 track master, 6ft cab	£5,500
TE16 Dual Density Slave D System/ch.	£6,750
TM11 9-track and ctl, 4ft. cab	£4,750
TU11 7-track Slave, 4ft. cab	£2,750
TU10 9-track Slave, 4ft. cab	£2,750
TU50 Dual Cassette Drive	£950
VT60 DECscope 20mA	£250
VT62 DECscope 20mA or RS232	£535

OPTIONS

AR11 16-channel I/O	£750
DB11A/B Unibus Repeater	£575
FP11E Floating Point (11/60)	£1,875
KE11B Extended Arithmetic	£980
KT11C Memory Management	£750
LP11 Printer Control (M7258)	£225
M9301 Bootstrap	£250
M9312 Bootstrap	£150

ACOUSTIC COUPLERS

AJ212 Anderson-Jacobson Acoustic Coupler, RS232/20mA, full/half duplex 300 baud

Specialists in Used Equipment At Keen Goodness

ELECTRONIC BROKERS LIMITED
61-65 Kings Cross Road, London WC1X 9LN.
TEL: 01 278 3461
Telex: 298694.

COMPUTER FURNITURE

Manufacturing capacity, skill and experience in equipment design, enable us to offer a wide range of computer furniture at competitive prices.

- VDU/Terminal Tables.
- Tape Storage Trolleys.
- Computer Room Trolleys.
- Data Preparation Trolleys.
- Stationery Storage Units.
- Special Designs to suit individual requirements.

For full details please contact:

J. J. Blow Ltd., Dept. C.W., Oldfield Works, Chatsworth Road, Chesterfield, Derbyshire S40 2DJ. Tel: 0246 76935

NOWAK

DATENTRÄGER

GMBH

Nowak Datenträger GmbH
Schimmelbuschstr. 21
D-4006 Erkrath 2 (West Germany)
Tel. 02104 31006
Telex 8581160

Maple Walk
Bexhill-on-Sea
East Sussex TN39 4SN
U.K. Telex 957485

Anything you need for your Disk Drives — we can help. We are your specialist all over the world.

Our Range:

Magnetic disk drives DRI, Diablo, Ampex, CDC – Sales and Service.
Magnetic heads for all disk drives, new, refurbished or exchanged. We are keeping in stock 6,000 brand new heads and 6,000 refurbished.
Magnetic tape heads, new, reconditioned or exchanged.
Air filters for magnetic disk drives of all manufacturers.
Disk/tape controllers and multiplexers for Data General..
High-speed disk controllers for DG Novs and Eclipse.
Shock watches, CE-cartridges and fix platen.

WANTED

Scrap Computers and components, including Boards, Connectors, Pins and Sockets.
Basis Metal Co. Ltd
Vineyard Walk, London EC1R 0JT
Tel: 01-278 8311 Telex: 27159

Appointments
Appointments
Appointments

OVER 100,000 COPIES EVERY WEEK

ComputerWeekly

Classified Department, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Box Numbers: Should be addressed to the box number in the advertisement c/o Computer Weekly at the above address

Classified Rates: £23 per scc
10 x 2 cols - £1,040 (£8 x 3 cols £1,266
Half Page (19 x 7 cols) £1,840
(20 x 4 cols) £2,146
Full Page (39 x 7 cols) £3,680

Copy Deadline: 3.30pm Monday prior Thursday publication date. Computer artwork up to 11 am Tuesday. Advertisement space reservation is advisable

LONDON 01 661 0121 (10 lines)
CONSULTANCIES SALES
Assistant Classified Manager
Chris Pole
Sales Executives
Julia Hannaford
Melanie Linforonon
DIRECT CLIENT SALES
Advertisement Manager
Ian Carter
Supervisor
Neil McDonnell
MANCHESTER/GLASGOW
Dawn Kelly 061 832 9861
BIRMINGHAM/BRISTOL
Vic Stewart 021 705 6698
Classified Production
Sheryl Lowe 01 661 3156

DO SYSTEMS PROGRAMMERS DREAM?

DREAM of accepting total responsibility for generating, implementing and supporting the latest IBM software for major sites within this international market leader.

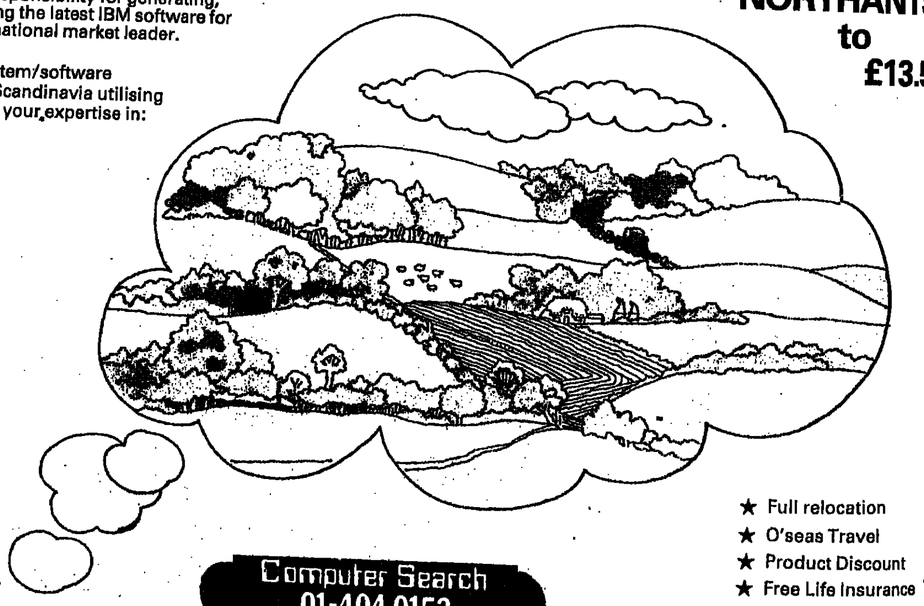
IMAGINE overseeing the system/software development in the UK and Scandinavia utilising your interpersonal skills plus your expertise in:

- ★ VM/CMS
- ★ DOS/VSE/CICS
- ★ NETWORK PROTOCOLS
- ★ POWER

and possibly

- ★ VARIOUS DATABASE LANGUAGES
- ★ OPERATIONAL TOOLS

NORTHANTS to £13.5K



- ★ Full relocation
- ★ O'seas Travel
- ★ Product Discount
- ★ Free Life Insurance

CONSIDER turning this dream into reality by contacting Gordon Thompson quoting ref: AP2098

Computer Search
01-404 0152
Norwich House, 13 Southampton Place, London WC1A 2AJ

APL

South Coast **To £9,500 neg.**

Our clients, a progressive division of a British Company, are well established in the field of process control systems. They are now seeking to expand their Software Applications facility with the addition of an APL Programmer.

This is an excellent opportunity for a graduate with a minimum of two years' experience and with a good working knowledge of APL.

In addition to a high negotiable starting salary this position offers excellent career prospects, profit-related bonus, contributory pension scheme, free life assurance and five weeks' annual holiday.

CONTACT: DEREK STANLEY
CRAWLEY (0293) 514071
(9a.m.-6p.m.)

ATA Computer Recruitment
34 The Boulevard, Crawley
(24 Hour Answering Service)

ata

Computer Operations Controller

£9,648-£10,176 p.a.

We are in the process of installing an ICL information system consisting of twin ME29 computers 7700 word processors and 7502 DRS interrogation terminals which will enable us to enter, store and retrieve information via a central data base from any location within the Authority.

We are looking for a computer operations controller to run the system, assist in its development and growth, supervise the two computer operators (if necessary, operating the computer in their absence) and carry out some Cobol programming functions.

Ideally, applicants should be experienced in the use of the ME29 computer, but those with 2904 or 1900 experience will be given a conversion course.

Experience of programming and TP would be an advantage, but is not essential.

Application forms available from the Director of Personnel and Secretariat, Town Hall, Mare Street, London E8 1EA. Telephone 986 7539 (24-hour answerphone) quoting reference AF178 returnable by 17/2/82.

An Equal Opportunity Employer

We welcome applications from registered disabled people. (0387)

SYSTEMS ENGINEER

ATEX is a US company based in Bedford, Massachusetts, with a UK subsidiary, ATEX Limited. We have sold a number of large photocomposition management systems to newspapers and major publishing houses. ATEX systems are based on DEC minis with ATEX software which takes text through each stage from the keyboard to the photocomposer.

ATEX requires a Systems Engineer to install total computer systems on customer sites. The appointment encompasses pre-installation involvement with the user and post sales customer training.

Handling ATEX systems draws upon a blend of skills. A knowledge of software written on Micro-11 must be complemented by an appreciation of DEC PDP-11 hardware.

The person appointed will be self-motivated and capable of working without supervision at a variety of customer installations, including Fleet Street. Based at the ATEX headquarters in Leighton Buzzard, the post will involve travel in Europe. Initial training is provided in the United States.

Benefits include a Company Car and generous rewards.

If it interests you, send a C.V. to Graham Burrows, Software Manager, ATEX Limited, Cumbria House, Hockliffe Street, Leighton Buzzard, Bedfordshire, LU7 8HB.

Subsidiary of
ATEX Inc, Bedford, Massachusetts.

atex LIMITED

myriad

Programmers . . .

Progress to . . .

Consultancy

Our client, a leading Consultancy with offices in the U.K. and Europe, is seeking additional Programmers offering sound experience of COBOL in a commercial environment. Successful candidates, who will ideally have gained their experience on hardware such as IBM, WANG, VS, HEWLETT PACKARD or PHILIPS, can look forward to excellent working conditions and salaries.

★ £7,000-£11,000 ★

Using the latest developments in hardware and software technology, our client offers those appointed the opportunity to play a major role in the development of advanced new systems in the areas of Insurance, Commodity Broking and other Financial applications. Offices are within easy reach of major transport routes with vacancies in:

★ CITY & CROYDON ★

The company offers excellent career progression together with substantial benefits including non-contributory pension scheme, L.V.s and free membership of BUPA. Contact Myriad (London) now and learn more about these outstanding positions. Ref: E1/0402.

Software Engineers

DEC Based Systems

Berkshire **£7,500-£10,000**

This expanding organisation has recently been awarded a major contract involving the development of technologically advanced real-time control systems. They need to recruit a number of Software Engineers to contribute to this exciting project.

Ideally you will have had demonstrable experience of programming in CORAL 66 or MACRO 11 on DEC PDP11s. However, commercial programmers involved with development projects on PDP11s will also be considered, as indeed will hardware or systems engineers, since attitude is more important than specific skills.

Contact us on Reading 585802 quoting reference R2/0402 to discuss these demanding opportunities in detail.

Distributed Systems Development

Systems Analysts

C. London **£8,000-£11,000**

Make a positive career move by gaining experience on the development of distributed processing systems using the latest technology.

A leading commercial organisation is seeking professional systems personnel to join newly formed project teams.

If you have:
- at least three years' in DP,
- involvement in implementation of at least one project,
- financial or commercial systems experience.

Our client can offer:
- development of distributed on-line systems,
- full scope for career advancement,
- a competitive starting salary with other attractive benefits.

For further information please contact our London Office, telephone 01-353 0981 quoting reference W1/0402.

Product Support Manager

Computer Graphics

South Bucks **To £15,000+Car**

Do you know Graphics? If you do, particularly CAD/CAM, and have an interest in technical and marketing support, this position, with a major manufacturer, offers an excellent outlet for your skills. The Company is making a major impact on world markets, selling both direct and to OEMs.

The person appointed will work closely with the sales department, being involved in customer consultancy, evaluations and demonstrations, qualification of potential OEMs and technical sales strategy, competitive evaluation, and technical support both before and after installation.

It is envisaged that the ideal candidate will be a graduate with a background in graphics software and some proven experience in a customer related role. The person appointed will be offered an excellent salary package and will hold a position with true potential for progression.

If you feel that this role may suit you contact our office on Reading 585802 to discuss the position in detail. Ref. R1/0402.

Myriad Appointments Limited

30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours
50a London Street, Reading, Berkshire RG1 4SQ Telephone: Reading (0734) 585802 24 hours

WANG

COMPUTERS AND OFFICE SYSTEMS

£11,000–£13,000

The Wang product range offers a system for every need and every budget, and covers total systems to individually tailored word processing systems.

In 1981, Wang's business achievements reflected significant market penetration and increased sales and profits resulting from a planned and controlled business strategy.

Such growth and success has lead to an immediate need for 3 specialists for the European MIS Team, who will take responsibility for implementation and support of business systems with Wang European subsidiaries in:–

Germany	France	United Kingdom
Austria	Belgium	Holland
Switzerland		Sweden

All positions are based in Isleworth, Middlesex, but applicants can expect to be travelling about 50 per cent of the time.

The range of skills required by these key individuals cover technical, personal and linguistic accomplishments. Successful candidates will have had a broad exposure to Programming, Systems Analysis/Design and Implementation activities gained with a computer manufacturer, other service orientated organisation or large user installation over a minimum period of 5 years.

In particular, candidates with sound commercial experience should have a working knowledge of Order Processing, Marketing and Financial systems. Self motivation, the ability to work on one's own initiative and excellent powers of communication are essential, **and for the overseas posts fluency in German and/or French.**

First class remuneration packages await the successful candidates, so to discuss your suitability and to arrange an initial interview, call Rex Ashcroft on 01-935 0671 during working hours or Harlow (0279) 416529 evenings and weekends.

SCR

London 01-935 0671 James House, 46 James Street, London W1
Birmingham 021-236 3781 35-37 Great Charles Street, Queensway, Birmingham B3 3JY.
Manchester 061-833 0427 Blackfriars House, The Parsonage, Manchester M3 2JA.
Brussels 010 322-640 7151/71 Avenue Louise 327, Boite 4, 1050 Bruxelles.
Amsterdam 010 3120-760947 Willemsparkweg 92, 1071 H.M. Amsterdam.

Specialist Computer Recruitment Ltd

MKA

CONTRACTING

THE SUN OF THE ARABIAN GULF – AND LUCRATIVE PROJECTS

IBM ICL

ANALYST PROGRAMMERS
OPERATIONS PROGRAMMERS
PROJECT MANAGERS
TECHNICAL SPECIALISTS/CONSULTANTS

A HIGH REWARD FOR TOP PEOPLE

We have been awarded two major contracts in the Arabian Gulf – our team know the areas, and can provide a comprehensive briefing from first-hand experience. We can thus manage your U.K. and overseas affairs.

Write to, or telephone, in confidence, DON KNAGGS, on 0905 28469 (office); or at home, evenings/weekends, 0299 400077

MKA PERSONNEL LTD.
SHADES HOUSE
MEALCHEAPEN STREET
WORCESTER WR1 2DQ

COMPUTER RECRUITMENT, TRAINING AND CONSULTANCY

LICENSED BY DOE — LICENCE NO. M/1149

MKA

(8390)

IMMEDIATE CONTRACTS FOR PROGRAMMERS

PROJECT LEADER	CROYDON	IBM COBOL VM/CMS
PROGRAMMERS	CROYDON	IBM COBOL IMS DB/DC
PROGRAMMERS	CROYDON/ LONDON	IBM SYSTEM 34 RPGII
PROGRAMMERS	LONDON/ CROYDON	DEC DIBOL RSTS
PROGRAMMERS	SOUTH COAST	IBM COBOL OS/MVS
ANALYSTS	SOUTH COAST	IBM

TLP

For further details contact NIC POLAND
TLP
A Division of Tate & Lyle Industries Ltd.
Leon House, High Street, Croydon CR9 3NH
01-680 2323
A Member of the Tate & Lyle PLC Group

Members of Computing Services Association

(8375)

European opportunities

Holland-Switzerland-Belgium
(Permanent and Contract)

Brussels – Assembler Programmers – to £16,000
A major International banking corporation requires people with several years Assembler experience (any machine) to work on a worldwide packet switching network. Opportunity for world travel after two years in Brussels.

Amsterdam – Senior RPG III Programmers – to £450 per week
A leading Dutch software company requires several Senior Programmers with substantial experience of RPG III on IBM System 38. Contracts will be for approximately 9 months.

Geneva – Systems Analysts – c.SF60,000
Systems Analysts with several years experience of MIS/Administrative/Budgetary Systems to take responsibility for overall Systems design and client support. A good communicator, ideally a single person as a substantial amount of travel is involved.

Holland – IMS Database Designers – c.DFL80,000
Applicants should have several years database design experience and a good knowledge of IMS. A knowledge of Dutch is an asset but not mandatory.

These jobs are a very small selection from the opportunities available in Western Europe through CAPP Associates. If you wish to work in this area we could well have a job for you. For these or any other positions telephone (24-hour answerphone) or write and quote CW104-2R

CAPP ASSOCIATES 01-686 9693
Capp House, 96d South End.
Croydon CR9 3SD.
Computer and Professional Personnel Consultants

THE BRITISH COUNCIL

Computer Auditor

£10,300

The British Council operates in about 80 countries, has a staff of about 4000 and is engaged in a wide range of educational and cultural activities.

It now seeks an experienced systems analyst and computer programmer (with at least four years' relevant experience) to specialise as a member of its audit team which advises management on financial controls, with special emphasis on the efficient use of resources.

The successful candidate will be required to analyse systems and devise and carry out suitable audit tests on the Council's fast-developing computer resources, and communicate their results effectively to management. The person appointed will be expected to train other staff.

Two-year contract renewable by agreement. Starting salary including London Weighting £10319 on incremental scale rising to £12352. Index-linked non-contributory pension scheme.

For further details and an application form to be returned by 2 March 1982, write or phone quoting E/3 to Staff Recruitment Department, The British Council, 65 Davies Street, London W1Y 2AA. Tel: 01-499 8011 ext 3174 or 3461.

THE BRITISH COUNCIL

Unequalled in its range of job opportunities

BRITISH AEROSPACE

COMPUTER ANALYST/ PROGRAMMERS

Dunsfold Aerodrome, near Godalming, is the Flight Test Centre and Final Assembly Plant for the Kingston-Brough Division of British Aerospace. They are now seeking experienced computer professionals to join teams engaged on computer-related aspects of flight testing.

Suitable candidates should have at least two years' relevant experience in one or more of the following areas:

- PDP11 Computers & RSX11M operating systems
- Macro II or Assembler level programming
- FORTRAN programming
- Computer applications for flight test data analysis.

Education up to Degree/HND level is also required. In addition to a competitive salary, successful applicants (who should have their own transport) can expect a generous benefits package which includes an active Sports & Social Club, subsidised meals and a pension scheme.

Please write with concise career details or telephone for an application form, quoting reference 34/CW, to: The Personnel Manager, British Aerospace Public Limited Company, Aircraft Group, Kingston-Brough Division, Richmond Road, Kingston-upon-Thames, Surrey KT2 5QS.
Telephone: 01-546 7741.

BRITISH AEROSPACE AIRCRAFT GROUP Kingston

LONDON BOROUGH OF SOUTHWARK

Experienced ICL OPERATOR or CONTROLLER

Salary Range £5,700-£7,200 including London weighting, + shift allowance

A Computer Operator/Controller is required for this secure position which offers two shift working where you will be responsible to the Shift Leader.

You will enjoy attractive fringe benefits such as a generous annual leave entitlement, a subsidised staff canteen and an active sport and social club.

Telephone 01-701 2870 any time for an application form, or write, on a postcard to: The Personnel Officer, London Borough of Southwark, 26 Commercial Way, London SE15 6DG. Please quote reference CW/8/2885 and job title. Closing date: 18.2.82

(8297)

OPERATOR

FOR A BUOYANT MARKETING CO. IN NW10

Candidates should be familiar with an IBM/34 and have RPG II experience.

In addition to a starting salary £7,000 the Company offers a wide range of benefits and early opportunities to progress within a fast moving environment.

Please write or telephone;
Barclay Appointments, 98 Duckshill Road, Northwood, Middlesex.
Tel: Northwood 274861 (Answer-call 24 hrs). (8418)

FOR **CLASSIFIED** ADVERTISING USE

DIRECT LINE 01-661 0121

---

logistix

Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Management Consultants
London: Salary to £18K

Our client, based in Central London, has an enviable reputation as one of the U.K.'s most prestigious Management Consultancies. An expanding client base in S.E. England has produced vacancies for additional Consultants to join existing project teams. All candidates must be self-confident, presentable and have good personal communication skills. It is anticipated that you will be a graduate aged 28 to 34 with the ability to appreciate problems from a business, technical and political point of view. Particular requirements are for Consultants who have a knowledge of structured design techniques, data base management systems or networking in a commercial data processing environment. Applicants who have experience of leading or managing a project team will, of course, be considered for more senior positions. Ref: L/5/A

BASIC Programmers
Greater London: Pkgs. to £10K

Our client, a renowned Systems and Software Consultancy is currently seeking additional BASIC Programmers to be based at its offices in Greater London. Suitable applicants will be graduates who have a minimum of one year's BASIC programming experience on a leading minicomputer, preferably DEC PDP 11. Successful candidates will join a small project team engaged in the design and development of software to meet user specifications. A knowledge of accounting or banking applications would be a distinct advantage, as there will inevitably be some client contact. Opportunities for career development are excellent and you will be encouraged to learn new programming languages and gain exposure to new hardware. Ref: L/5/B

ATE — Systems Design
Southern Home Counties: Salary to £11K

A highly regarded Company in the design and manufacture of Automatic Test Equipment for Linear LSI, Digital and Laser trimming device systems has a number of vacancies for Systems Architects. Suitable candidates must hold at least one numerate degree and have two or more years' postgraduate work experience. Of particular interest will be those who can conceive and design a system or sub-system for end user applications. Additionally, you will have direct involvement in the resolution of both in-house research and customer test problems. You will frequently be required to actively participate in Seminar presentations and systems demonstrations. Ref: L/5/C

Comms. Consultants
Central London: Salaries to £17K

A world leader in the field of Information Technology and Communications is seeking Consultants and Senior Consultants, with experience of X25 protocolling techniques and knowledge of the OSI reference model, to join its Product Development Division. Suitable applicants will be educated to degree level and offer at least five years in programming and systems development, working for a manufacturer or systems and software house. Particular areas of involvement should have included office automation, message/packet switching or Viewdata systems. Candidates able to offer foreign language ability will be especially welcome as the Company has a substantial overseas client base. Ref: L/5/D

VAX Progs./Designers
London & E.E.C.: Salaries to £15K

A leading International Systems Company specialising in the development and sale of communications software is seeking Programmers and Designers for its Central London and overseas facilities. Suitable candidates should hold a numerate degree and have two years' subsequent programming or systems design involvement. Fluency in FORTRAN is essential and it is preferable to have had exposure to either a PDP 11/RSX-11M or VAX/VMS configuration. Candidates who are fluent in a foreign language especially French or German will be of particular interest to our client. A degree of mobility is necessary since most positions involve both European and transatlantic travel. Ref: L/5/E

Micro Design Engineers
Thames Valley: Salary to £10K

A number of Microprocessor Design and Development Engineers are sought by a leading microcomputer and semiconductor manufacturer. As there are a considerable number of positions available, the variety of skills required is, necessarily, diverse. However, experience in one or more of the following areas is essential: customisation of operating systems such as CP/M or MP/M, with a salary premium attached to a knowledge of a networking O.S., compiler and cross-compiler development particularly if utilising PASCAL or C; familiarity with a leading MDS such as ISIS and, also, experience in the design and production of interface hardware and software. A degree of customer contact is a feature of most of these positions and, therefore, an outgoing personality and good communications skills are required. Ref L/5/F

Honeywell Consultants
Inner London: Salary to £13.5K

A renowned supplier of Total Systems and Software Packages wishes to appoint several Honeywell Consultants. Our clients demand that your most recent experience must have been within a large or multi-user Honeywell L64/66/DPS environment. Technically, your experience should include at least five years' continuous exposure to GCOS/IDS/TDS software either as a Systems Analyst/Designer or Consultant. Utilising your highly-valued skills you will be engaged in the writing of functional specifications, systems design, implementation and live running. Candidates must therefore thrive in an environment where their technical abilities and managerial skills are in considerable demand. Since these positions entail close liaison with both prospective users and senior management, a well-informed approach and mature personality is essential. Ref: L/5/G

Navigation Systems
West Home Counties: Salaries to £13K

A highly regarded supplier of precision electronic instruments is seeking a number of Software Development Engineers and Systems Designers for its Thames Valley Research and Development facility. The Company specialises in the development and supply of software and systems to companies in both the private and public sectors. Current requirements exist for those who hold at least one numerate degree and have a minimum of one year's industrial experience. Practical programming skills must include total fluency in one or more of: PASCAL, FORTRAN or MACRO-11. Of particular interest are candidates who have an in-depth knowledge of the development of compiler software where high reliability is a critical operating factor. Ref: L/5/H

Licensed by D.O.E. — Lic. No. SE/6913 (8350)

TOP SALES EXECUTIVE

COMMERCIAL/FINANCIAL APPLICATIONS SOFTWARE

CIRCA £27,000 ON QUOTA PLUS QUALITY CAR (ROVER, AUDI, VOLVO) AND BENEFITS

BASED IN BERKSHIRE TO WORK A LARGE RICH TERRITORY FROM MANCHESTER THROUGH BIRMINGHAM TO BUCKS/BERKS

To be recommended by IBM for financial software packages is an endorsement second to none. Our Client enjoys this enviable position earnt by a totally professional approach to the supply and continual development of their products specifically for the IBM user.

The success of the Company is based on a positive and professional marketing policy of products that are internationally acclaimed. Growth is dynamic yet controlled and the right person would certainly be assured of a superb career opportunity.

As the exceptional earnings potential and the quality of the company car would suggest, the whole ambiance of the operation is very much "up market". We have been retained by our Clients to find one important addition to their current sales strength and that person will need to identify closely with this type of image. The territory is large and very lucrative and it needs a disciplined professional to harvest its true potential.

We encourage applications from successful sales executives or managers from the Industry who have the ability to negotiate at the highest levels and a shrewd understanding of business practice and general commerce. In short, we seek a successful businessman who is credible, professional and industrious, and already high earnings orientated. The successful candidate will need to live within commuting distance of the Berkshire head office and it is unlikely that the qualities we seek will have matured sufficiently in a person under the age of 30.

To discuss this excellent opportunity, please telephone BOB BOWER, Advising Director.

Ref: CW0402/1

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24 HOURS)

(2834)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

NORTH BUCKS

SYSTEMS ANALYST

£9,000-£11,000

Our Client is a dynamic and highly successful medium sized engineering company which manufactures a high technology product and uses the most advanced computing techniques available, based on an IBM 4331.

A Systems Analyst is required to support the Project Leader of a COPICS system which is about to be implemented. Whilst COPICS experience is not essential, you should have at least three years' experience in an engineering or manufacturing environment and be capable of taking a system from specification to implementation.

You should be flexible in your approach to your work as the Company does not believe in rigid terms of reference but rewards initiative and enterprise. We expect you to be good at, and enjoy, user contact from shop floor to board level.

Job satisfaction is guaranteed, as you will be given total responsibility for a specific area and will be using pioneering technology. Working conditions are excellent, with modern offices and production unit set in this attractive part of the country. Your planned career progression will be detailed at interview.

For further information, please contact MARK IRENS, Advising Director, quoting reference CW0402/2

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

LONDON N.W.10

PROJECT MANAGER

TO £11,000

A division of a U.K. manufacturing/engineering organisation will shortly be installing a CMC REALITY mini computer with appropriate packaged software. This has created an opening for a Project Manager to take responsibility for identifying and implementing solutions to technical problems experienced in its implementation.

The following experience is required:

* Mini computer experience, ideally but certainly not necessarily on CMC REALITY.
* Manufacturing systems experience.
* The ability to understand complex user requirements and translate these into detailed D.P. implementation plans.
* Experience in controlling a small team of analysts and programmers.

This is seen as a ground floor opportunity for a person with the relevant background to gain his or her first experience of project management.

For further details, please contact MARK IRENS, Advising Director, quoting reference CW0402/3.

HUTTON EXECUTIVE SELECTION LTD.
HUTTON HOUSE,
HUTTON STREET, LONDON EC4Y 8HP.

TELEPHONE: 01-353 7141 (24 HOURS)

Hutton
SPECIALIST RECRUITMENT CONSULTANTS

ANALYST\PROGRAMMERS FOR TOP SYSTEMS HOUSE

Software Sciences' Commercial & Financial Division is looking for experienced analysts and programmers to meet the expanding demand for its services. Successful candidates are likely to be career-minded professionals with:

- ☐ *at least three years in computing;*
- ☐ *in-depth knowledge of VAX, TANDEM, Data General, or IBM systems;*
- ☐ *sound experience in two or more of PL/1, Basic, Cobol, and Assembler;*
- ☐ *a successful track record in developing software for commercial and financial applications.*

Team leader/project control experience would be applicable to some of these vacancies.

The Division's work includes total turnkey systems, software implementation, and applications product, development. It operates across a very wide range of applications, and for clients at every level of computing experience. You can, therefore, expect an unusually varied and challenging career future with us.

In addition, as part of one of the UK's most successful systems houses, we are geared to satisfying the career aspirations of computing professionals and providing the benefits they expect.

Up to £11k Farnborough based

If you are interested in these vacancies please contact Sarah Chambers, by phone or letter, for an application form.

Software Sciences Limited
(Head Office)
Abbey House 282/292 Farnborough Road
Farnborough Hampshire GU14 7NB Telephone 0252 44321

TYMSHARE UK

Manager Existing Accounts

London Based £16,000 + Car

Tymshare UK is a computer services company jointly owned by Tymshare Inc of California ($250,000,000 turnover) and the Unilever Group of companies. Other international affiliates are similarly established as joint holdings with major companies eg. Credit Lyonnais in France and the Marubeni Corporation in Japan.

The company provides internationally networked services which run on IBM, DEC and Xerox mainframes and micro/mini/intelligent terminals used in a turnkey distributed processing capacity.

We are seeking an Accounts Manager for the West London branch. The person appointed will be responsible for the control and development of existing business with internationally known companies currently producing revenues of around £250,000 p.a.

In order to do this job effectively it is likely that the successful applicant will have:

- A degree or professional qualification.
- Worked in a sales orientated or consultancy environment.
- Knowledge of database/real time systems and communications.
- Experience of financial/commercial systems.

In return for these skills the company offers an attractive benefits package, and the opportunity to promote some of the most advanced systems and communications facilities available. This is a real chance to secure a future in a financially sound organisation, which has undergone a major restructuring in this country and is now committed to an ambitious growth plan for the 80's.

Please telephone or send a curriculum vitae to:

John Lowry	Peter Jones
Tymshare UK,	Tymshare UK,
Kew Bridge House	Brettenham House,
Kew Bridge Road,	Lancaster Place,
Brentford, Middlesex.	London, W.C.2.
01-568 4277	01-379 7822

Lloyd Chapman Associates
123, New Bond Street, London W1Y 0HR 01-499 7761

Freelancers...

...in the **North of England and Scotland** who are available now or in the near future are invited to contact me, Peter Moore, to discuss a variety of interesting and rewarding assignments throughout the UK and overseas.

P-E Computer Services Limited
Winchester House, Fountain Street, Manchester M2 2EF. Telephone: 061-228 2776.

PE

GET AHEAD!

OUTER SPACE
ANALYST/ PROGRAMMER
LONDON/FRANKFURT
£££+++

Space communications project. Some travel between UK and Germany. Scientific background/languages will secure top salary, benefits and prospects. Ref: SA526.

TRANQUILLITY
JUNIOR & SENIOR CONSULTANTS
WOKING AREA

Super company and gorgeous location. New commercial applications/systems, some contact with the client. Generous salary ++ car allowance, super job, super people. Excellent training opportunities and prospects. Ref: SA510.

WHY COMMUTE?
ANALYST/ PROGRAMMER
CAMBERLEY AREA

Secure company with full order book offers interesting applications, scientific real time systems. Salary £8,500, more, if qualified . . . hurry. Ref: SA521.

STOP PRESS
City ANAL/PROG. Major business/banking consultancy. Interesting project. Sal. £8K-11K. Urgent. Ref: SA507.

AB EXECUTIVE (KINGSTON)
01-549 6441 (8391)

Unix Systems Programmer

The Computing Division of the Rutherford Appleton Laboratory runs Unix V7 on a PDP 11/70, a PDP 11/34 and a LSI 11/23 which are part of a local area network based on a 10 MHz Cambridge Ring. Current development work includes Cambridge Ring protocol implementations, servers, a troff backend for a colour microfilm recorder and a X25 wide area networking connection.

Another major development is a virtual memory implementation of Unix on the ICL PERQ single user system involving high resolution graphics and local area connections. A Unix expert is required to develop Unix for this high quality, distributed systems environment.

Posts are based at the Chilton site and will be in one of the following grades:

Scientific Officer	£5,176 – £6,964
Higher Scientific Officer	£6,530 – £8,589

Some assistance with removal expenses maybe allowed in appropriate cases.

Appointment as a Higher Scientific Officer requires a good honours degree and several years experience in this field.

The Laboratory is a friendly community with its own restaurant and sports facilities nearby. We offer excellent working conditions and benefits include a local transport service, generous holidays, sick leave allowance and a non-contributory superannuation scheme.

For an application form please write to: **Recruitment Office, Personnel Group, Science and Engineering Research Council, Rutherford Appleton Laboratory, Chilton, Didcot, Oxon. OX11 0QX, quoting ref VN011 or telephone Abingdon (0235) 21900 Ext. 510.**

Closing date for applications: 1st March 1982.

Rutherford Appleton Laboratory In the forefront of research

FOR
CLASSIFIED
ADVERTISING USE
DIRECT LINE
01-661 0121

Ramsbury

Building Society

Investing in the future since 1846

SENIOR OPERATOR

NEW NCR 8555 SYSTEM

The Ramsbury Building Society are seeking to employ an experienced operator for their new NCR computer which is due for delivery early in 1982. The successful applicant will report directly to the Data Processing Manager and will be responsible for the efficient operation of the computer room. The machine is a NCR V8555M with 658 disks, 6342 magnetic tapes and a 1200 1 pm train printer. This position offers an excellent opportunity for a person with a sound knowledge of NCR computers and a minimum of two years experience using the VRX operating system.

Telephone: G. E. BARNES, Data Processing Manager

RAMSBURY BUILDING SOCIETY
The Square, Ramsbury,
Marlborough, Wilts. SN8 2PF
Telephone Marlborough 54376

Stating experience to date and salary required.

Employment benefits include a non-contributory pension scheme and concessionary mortgage facilities.

(8408)

the most Challenging Opportunities under the Sun

South Africa offers a life style of the highest standards arising from a combination of lower living costs and lower income Tax rates, with the Rand having about the same buying power as the Pound in Britain. All this adds up to the opportunity for a most appealing way of life in a beautiful country with a superb climate. We will of course answer in detail any questions you or your family may have about life in South Africa.

IBM up to £16 000
DATABASE ADMINISTRATORS
SOFTWARE PROGRAMMERS
ASSEMBLER PROGRAMMER

LA INTERNATIONAL have been specially retained to select and recommend IBM software specialists whose ambitions include taking on 'big business responsibilities' in an organisation whose growth and achievements have made it a multi-national 'Blue Chip Corporation.' Enjoying a turnover fast approaching R½ Billion our client is one of Africa's largest retailing groups whose primary activities embrace family clothing, footwear and household textiles.

Set in an outstanding location some ten minutes from the heart of Johannesburg, the group enjoys the facilities of one of the world's most sophisticated headquarters: internationally described as 'a Victory to Human Architecture.'

Database Administrator
£12 000 – £16 000 plus bonus

Experience
Minimum 5 years DP including 2 years Systems Analysis. The position is managerial and the promotion prospects are excellent.

Software Programmers
£10 000 – £12 000 plus bonus

Experience
Minimum 3 years in on-line environment. Knowledge of some of:–
OS/JCL, OS/VSI, ASSEMBLER, COBOL, CMS, VTAM, VSAM. Prospects excellent.

Assembler Programmer
£9 600 – £11 000 plus bonus

Experience
3 years. Knowledge of 370 Assembler. Preference given to people with knowledge of VTAM/CICS. Prospects excellent.

Fringe Benefits
Excellent relocation allowances
Annual bonus
Pension, life and medical schemes
20 days annual leave
Study loan facilities
Assistance with housing
For the more senior positions a company car and expenses and the use of company holiday flats in Durban and Cape Town.

Interviews held in London last two weeks of March.

Other Sunshine Opportunities

Chief Software Controller	IMB, MVS, CICS
Senior Software Programmers	IBM, MVS, CICS
Senior Project Leaders	Engineering, scientific financial or banking applications
Project Leaders	Engineering, scientific financial or banking applications
Analyst Programmers	Financial or banking applications
Systems Analysts	Engineering or scientific applications
Software Programmers	Pref IBM minimum 2 years
Database Analysts	Pref IBM minimum 2 years
Analyst Programmers	Pref IBM minimum 2 years
Programmers	Pref IBM minimum 2 years

In addition to excellent salaries we are also offering a range of fringe benefits and a relocation package.

up to £16 500 plus car

Systems Application Specialists
Senior Software Controller

Our client is a well established organisation which is fully equipped to provide a complete computing service to the Republic of South Africa and is enjoying an annual growth rate of 40%.

Backed by the financial resources of one of South Africa's largest organisations our client is responsible for many technical innovations in computing.

Systems Applications Specialists
These positions require all-round DP Professionals to provide a complete pre-and post-sales support service of Optical Character Recognition equipment.

Responsibilities will include: –
Application investigation
Paper flow analysis
Installation planning
Sales and Customer liaison
Demonstration and Presentation
Customer Training
Full product training will be given in the USA.

Senior Software Controller
This position requires a DP professional who has had at least ten years experience in the application of standard commercial, production and financial packages.

The job is to control the acquisition and verification of software packages for Datapoint sales and support. This will entail liaison with sales staff, customers and international software houses and will involve travel within the Republic and internationally.

Fringe Benefits
Fringe benefits include relocation and setting-in allowance together with all the benefits associated with a modern and internationally recognised 'Blue Chip' organisation.

We need Computer professionals for Contract and Permanent jobs.

Write with full C.V. or telephone for a Registration Form

LA International

LA International Consultants Limited
Management and Computer Consultants

Leeds House, High Street, Newcastle,
Staffordshire, ST5 1PS England
Telephone: 0782 633121

Sales Executives

Currently Earning £14,000 – £25,000

Michael Linford Associates wish to hear from Senior Sales Executives and Sales Managers whose track record to date has demonstrated superior ability.

We are an established consultancy who specialise in the search and selection of sales and marketing executives for the computer industry.

Perhaps your current appointment is fulfilling your career needs, but nevertheless, you are interested in future opportunities, alternatively you may be actively seeking a new appointment now.

You may be looking for:

★A higher income
★A totally professional peer group.
★A more sophisticated product
★A more authorative role

Or, more likely, a combination of all these factors, then perhaps its time you spoke to us. Bear in mind, the best position for you may never be advertised.

In the first instance, telephone **Mike Linford** on: **01-584 1766/1767.** Or send a brief CV for his attention to the address below. Any approach will be treated in the strictest confidence.

Michael Linford Associates Ltd.
Executive Search Consultants

45 Brompton Road, Knightsbridge, London SW3 1HR. Telephone 584 1766/1767.

UNIVERSITY COLLEGE CARDIFF

Applications are invited for the post of

ASSISTANT COMPUTER OFFICER

in the User Services Group at the COMPUTING CENTRE, primarily to assist in providing an Advisory Service to computer users. The post also includes programming and documentation duties, as well as periodic supervision of a Faculty computing area, which includes a remote job entry station and interactive terminals. Knowledge of Fortran is required and experience of Algol and/or Basic is desirable; a degree qualification is not essential. This is a fixed term appointment, tenable for a maximum of three years, within the salary range £5,085–£6,070. Duties to commence as soon as possible.

Applications (2 copies), together with the names and addresses of two referees, should be forwarded to the Vice-Principal (Administration) and Registrar, University College, PO Box 78, Cardiff CF1 1XL, from whom further particulars and application forms are available. Closing date 15 February 1982. Reference 2349.

ICL/TOPS COURSE GRADUATE, MALE, AGED 21, SEEKS POST AS COMPUTER PROGRAMMER-TRAINEE
01-304 2698 8344

BURROUGHS B800
Data Processing Supervisor/Senior Operator
New installation.
Top Salary + fringe benefits.
Wholesale fashions.
Norman Linton Ltd
29/61 Highgate Road
London NW5
(Nr. Kentish Town Station)
01-267 0921

BOX NUMBERS
Box number replies should be addressed to:
Box Number .....
c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

SYSTEMS ANALYST	to £11K Leicestershire
PROGRAMMERS COBOL/PL1/RPG11	to £12K London, Home Counties
SENIOR SYSTEMS ANALYSTS Meapics/Ipics, Engineering Background, IBM exp	to £12K Essex
SALES EXECUTIVES Packages /Micros	to £26K Oxford/Croydon
ANALYST PROGRAMMERS DEC/MUMPS	to £12K London
PROGRAMMERS & ANALYSTS Data General/Perkin Elmer/DEC	to £15K North Berks
HARDWARE/SOFTWARE DESIGNER	to £12K Somerset/Hants
SENIOR SYSTEMS PROGRAMMERS DOS/CICS/Teleprocessing	to £13K London/Home Counties
ANALYST/PROGRAMMERS ICL ME29/System 10	to £12K Surrey
FIELD SERVICE ENGINEERS Mainframe and Minis	to £10K Nationwide
PROGRAMMERS Cobol/Assembler/IBM 3032	to £10K Surrey
TECHNICAL SUPPORT	to £12K Nationwide
SOFTWARE ENGINEERS Communications	to £11K Berks, Bucks, Hants
ANALYSTS 2 years' experience + RPG 11	to £14K London/Home Counties
CONSULTANTS Banking/Insurance	to £20K London
SENIOR PROJECT ENGINEER Peripherals/Industrial contracts	to £15K North London
PROGRAMMERS Cobol/IBM 3031/Commercial exp.	to £9K Leicestershire
SYSTEMS PROGRAMMERS	to £13K Croydon/Slough
MAINTENANCE ENGINEER SCADA Systems	to £neg Oman

For the opportunity to hear about YOUR kind of job throughout the U.K. telephone.

(8407)

SLOANGATE LIMITED
214 KINGS ROAD
KINGSTON-UPON-THAMES
SURREY KT2 5HX
24-HR. ANSWERING SERVICE
TELEPHONE: 01-549 9236

Sloangate The Appointments Register

ComputerWeekly

February 18th, 1982

NORTHERN RECRUITMENT FEATURE

The February 18th issue of Computer Weekly – Britain's highest requested computer journal – will contain a special feature outlining career opportunities in the North.

Computer Weekly is the only computer journal to regularly publish editorial features covering a variety of subjects linked to the job market.

The combination of this special editorial feature together with Computer Weekly's highest penetration of the key job-titles of Analyst, Programmer and Operator, provides a first-class recruitment advertisement platform.

To book your space ring:

OWEN KELLY ON 061-872 8861

CONTRACTORS

Register now for your next assignment

OUR CURRENT REQUIREMENTS INCLUDE

IBM OS/DOS CICS +/– DL1 COBOL	ANALYST/ PROGRAMMERS
IBM SYSTEM 34 RPG2	PROGRAMMERS
IBM ADABAS +/– NATURAL	ANALYST/ PROGRAMMERS
IBM IMS DB/DC (PL/1)	DATABASE DESIGNER
IBM OS MVS COBOL (FINANCIAL EXP)	PROGRAMMERS/ ANALYSTS
IBM IMS COBOL	PROGRAMMERS/ ANALYSTS
ICL SYSTEM 10 COBOL OR ASSEMBLER	PROGRAMMERS
ICL ME29 RANGE COBOL	PROGRAMMERS
VAX VMS COBOL (IMM AND MARCH)	PROGRAMMERS/ ANALYSTS
PDP11 RSX/11M MACRO +/– RTL2	ANALYST/ PROGRAMMERS
(DECNET ADVANTAGEOUS)	
DPD 11 RSX 11/M RPG11	PROGRAMMERS
H.P.3000 IMAGE VIEW QUERY COBOL	ANALYST/ PROGRAMMERS
HONEYWELL LEVEL 6 SCREENWRITE +/– COBOL	PROGRAMMERS
HONEYWELL 64 DR 66 GCOS IDS TDS COBOL	PROGRAMMERS
UNIVAC 1100 EXEC 8 DMS TIP COBOL	PROGRAMMERS
MOTOROLA 68000 ASSEMBLER	PROGRAMMERS

A Computer Search contract starts by calling Miss Siobhan OKelly on Hemel Hempstead (0442) 40761 (24 hour answer service).

Computer Search (Contracts) Ltd.,
Hamilton House, Marlowes,
Hemel Hempstead, Herts. HP1 1BB.

(0442) 40761

Computer Search Contracts

More variety in our public house.

Freelance & Permanent Vacancies

SOUTHERN 0276 64252

URGENT: SUSSEX AREA
IBM COBOL CICS PROGS – LONG TERM ASAP

BURROUGHS 66/6800 DMS 11 COBOL
Long term assignments. Start March
ICL COBOL TPS
9 month contract A.S.A.P.
Any COBOL with Michael Jackson structured techniques
Project Leader with QPAC
Analysts with Life Assurance or Financial background
Analysts various Systems
UNIVAC 1100 COBOL some with DMS
UNIVAC 1100 Fortran
IBM, OS COBOL
IBM, COBOL, CICS & DL1
IBM PL1 Various requirements
IBM 8100, DPPX, COBOL
IBM SYSTEM 34, RPG11 & DMAS
IBM RPG11
IBM COBOL, CICS & QPAC
IBM CICS (DMS)
IBM DMS/DC, CONSULTANT
IBM IMS DB/DC, ADF TEAM LEADERS/SYSTEMS DESIGNERS
IBM CMS COBOL
IBM CICS, VTAM, COBOL/ASSEMBLER, Programming Consultant
IBM MARK IV
IBM UFO expertise
IBM PL1, CICS, IMS, DB/DC – Team Leader
IBM System Programmers

HONEYWELL L64, 66, GCOS, COBOL, IDS, TDS
HONEYWELL L66 COBOL & FORTRAN
ICL 2900 VMEB COBOL some with IDMS
ICL Applications Manager
ICL UNIVAC 1100 Conversion Programmer
ICL ME29 COBOL
ICL TPS
BURROUGHS SERIES L PROGRAMMERS
PDP RSTS/E BASIC+ or BASIC+2
PDP RSX11M BASIC+2
PDP COBOL
PDP VAX BASIC
HP 3000 COBOL
WANG COBOL or BASIC
PASCAL PROGRAMMERS
TANDEM any levels (URGENT)
CORAL 66 some with MACRO 11
VENTEK DATAPOINT, DATABUS
DG Aclispe COBOL
ZAT PASCAL

Contact: STEVE WHITING, NEIL SMITH, ALAN PAINE, STEVE CASEY, DAVE EVANS or DAVE PEART.

OPERATORS 0276 64252

ICL 1900 George 2 & George 3
IBM 4300 DOS or OS/VM
IBM OS/MVS
OS/MVS JCL WRITERS
Contact: CHRIS WETHERLEY

OVERSEAS HOLLAND

021-742 4431

HP3000 COBOL PROGRAMMERS
ICL 2900/ME29 TME SYSTEM PROGRAMMERS
SYSTEM ENGINEER – HP1000 or Motorola 6809
MICRO Technician with DC interface exp.
DEC Software Programmers
DEC/VAX Mumps Programmers
Contact: GRAHAM HARRIS

MIDLANDS & NORTH

021-742 4431

Scientific Fortran Programmers any machine
IBM DOS VSE, CICS, DL1 – SYSTEM PROGRAMMERS
IBM or ICL IDMS DB ADMINISTRATOR
IBM DL1, IMS PROGRAMMERS
IDMS ANALYST/PROGRAMMERS
PDP RSX11M MACRO PROGRAMMERS
Contact: GRAHAM HARRIS

OVERSEAS SAUDI ARABIA

0276 64252

ARABIC speaking consultants all levels.
Programmers/Analysts with any of the following: PL1, MARK IV, FORTRAN IV, with OS/MVS, TSO/SPF, and or IMS, DB/DC, ADF, COBOL, JCL, UTILITIES, Business Analyst to formulate an EDP Training Program.
Business Analyst General Commercial Systems
JCL Writers/MVS
Contact: CHRIS WETHERLEY

PERMANENT

0276 64252

The Trident Permanent Recruitment Division provides a confidential consultancy service to all levels of Data Processing staff ranging from Operator to Executive Manager.
Our National/International clients currently have ongoing requirements particularly for Programmers and Analysts with proven expertise of on-line and Database Management Systems.
We would like to hear from professional men and women who wish to progress their careers in a mainframe, mini or micro computer environment.
For advice on a well-informed move contact Peter Jezeph or Bill Evans on (0276) Camberley 64252 or write enclosing a detailed C/V.

TRIDENT COMPUTER SERVICES

WE CARE FOR OUR CONTRACTORS

THE PARADE,
HIGH STREET,
FRIMLEY, SURREY
Tel: 0276 64252. Telex: 858386

2115 COVENTRY ROAD,
SHELDON,
BIRMINGHAM B26 1BR
Tel: 021-742 4431. Telex: 336879

Licensed by the D.O.E. as an Employment Agency & Employment Business SE(B)1480

Communications Development

Career Opportunities for Site Analyst and Operations Staff European and U.S.A. Travel

Sperry Univac International Distributed Systems Centre was set up in Central London in 1979. Since then it has been in the forefront of "state-of-the-art" communications software development for major customers worldwide. As a result of our continued success and growth we are establishing a small Operations Department based on a Univac 1100/80 with vacancies for the following staff:-

SITE ANALYST
You should have 3-5 years experience supporting a complex Univac site using extensive data communications equipment, and be able to organise and maintain a similar environment with the objective of achieving a high degree of automatic production system running, other duties will include setting up complex hardware and software test systems using automated test tools such as CS1100.

OPERATORS
Three positions requiring individuals with 2-4 years operating experience on Univac 1100 series computers, preferably with exposure to data communications. We are looking for people with initiative and ability to work unsupervised on technical activities and accept responsibility as a member of a team dedicated to providing a high level of service from the facility to the software development groups. Conditions of service are excellent and are based on a normal working day from 9.00 a.m. – 5.15 p.m.

Successful candidates for all these positions will be given the opportunity to transfer into communications software development groups after a suitable period with the chance to work on exciting projects in areas like public data networks, local area networks and airline systems.

Some degree of short-term travel will be involved, particularly to the U.S.A.

The rewards package is excellent including pension scheme and other large company benefits. All the positions are based in a modern, attractive building in Central London with easy access to mainline and underground stations.

If you are interested in these positions, please apply with curriculum vitae or telephone for further information and an application form to: Mrs. Valerie Morton, Personnel Officer, Sperry Univac, Sperry Univac Centre, Stonebridge Park, London NW10 8LS. Tel: 01-965 0511 Ext 3669.

SPERRY UNIVAC
DIVISION OF SPERRY LIMITED

ARE YOU A HIGH FLYER?

If you like the sound of London one week, New York or Europe the next, if you are self motivated and enjoy a challenge, if you are a first-class PROGRAMMER or ANALYST PROGRAMMER then COMPUTER SYSTEMS INTERNATIONAL can offer you varied and exciting projects (from mainframes to minis) plus the following: –

* **Salaries to £12,000**
* **3 salary reviews per annum**
* **Paid Overtime**
* **4 weeks' holidays**
* **Free Life Assurance**
* **Flexible working hours**

CSI is a computer services company offering a wide range of services to all computer users and potential users. The company formed in 1966 is international in its operation, having offices in London, New York and Dallas, and has a reputation for quality of service. Applications are welcomed from D.P. professionals with a minimum of 18 months' experience of programming using Cobol preferably on IBM hardware.

To arrange your confidential interview please telephone Sue Ashby **01-836 6775** or **0844 53531** evenings and weekends.

Computer Personnel International
THE SPECIALIST RECRUITMENT SERVICE DIVISION OF COMPUTER SYSTEMS INTERNATIONAL

myriad

Mini/Mainframe Development

Middx/Surrey **Programmers and Analysts £8,000-£11,000**

Having formulated new system plans, our client requires several experienced and well-motivated Systems and Programming staff to commence development of a distributed processing system employing sophisticated mini and mainframe computers.

Programmers should offer at least two years' COBOL programming experience gained in either a mini or mainframe environment and be keen to progress their career towards analysis.

Systems Analysts will be required to specify project requirements, schedule development, test and implement the new systems in a phased approach.

Candidates for these positions should telephone, or write, quoting reference WS1/0810. All applications will be dealt with in confidence and we will be pleased to discuss the opportunities offered by our client.

New IBM-based Systems Development

Essex/Herts border **Analysts to £10,500 Programmers to £9,000**

A highly successful commercial organisation which is located within easy reach of the A10, A11 and M11 have recently projected a new systems development plan utilising IBM mainframes and distributed minis. The projects will provide interesting real-time and database development opportunities for the people appointed.

The **Systems Analysts** can look forward to taking a full system development role involving extensive computer user contact through all phases of the project.

The Programmer positions at both the **Junior** and **Lead Programmer** level require applicants to offer a minimum of two years' COBOL, preferably from an IBM or related machine background, with the opportunity of training in IBM techniques.

Call Myriad now to discuss these excellent career opportunities. Ref: EN1/0810

Analysts and Programmers

Near Waterloo **£8,000-£12,000**

Our client, a major UK organisation, is seeking career-minded and experienced systems and programming personnel to enhance their project teams currently engaged on an extensive systems development programme.

Applications are invited from professionals with at least three years' data processing experience gained in the development of commercial systems preferably working on IBM or ICL equipment.

This is an excellent opportunity to work on major development of on-line/real-time and database systems. A competitive starting salary is offered, together with generous other benefits. There is full scope for career advancement and further training is positively encouraged. Ref: SE1/0810

Programmers & Programmer/Analysts

Central London **£8,500-£11,500**

Our client is seeking to recruit young, enthusiastic and well-motivated Programmers and Programmer/Analysts wishing to advance their careers in a technically stimulating and challenging environment.

These positions offer the opportunities to:
★ Develop new systems, including 'THE OFFICE OF THE FUTURE'
★ Work on IBM 4300 and a mini network.
★ Progress rapidly to analysis and project responsibilities

Ideally, applicants will have at least two years' COBOL experience preferably gained within an IBM/ICL environment. The Company offers excellent starting salaries and a range of substantial fringe benefits. Ref: C1/0810

Myriad Appointments Limited

30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours
50a London Street, Reading, Berkshire RG1 4SQ Telephone: Reading (0734) 585802 24 hours

Systems Programmers, Systems Designers & Project Leaders

1982 is Information Technology Year

HERE'S HOW YOU CAN EXPLOIT IT.

Our clients are based in Central Southern England – but they sell their services to the world. Their most recent achievements have definitively set the pace in advanced distributed systems development. To maintain and extend still further their lead in this competitive market, they require the best of today's innovative, talented young minds. Minds capable of being fully stretched in an advanced technology environment. Could this be the opportunity for you to explore what is now being widely hailed as the Information Technology Revolution?

Whether you're a Systems Programmer or Designer, or are already enjoying project leadership/management status, this is your chance to join – or help establish – some of the most dynamic project teams in the industry, working at various locations throughout the United Kingdom.

You'll be directly involved in the development of a product range that provides total capability for stand-alone systems or distributed working over different types of network. The variety of the work ensures considerable flexibility; it is a stimulating environment aimed at encouraging maximum individual development.

Senior positions carry overall responsibility from design through to completion. A small number of posts are available in a centralised trouble-shooting role – identifying and resolving problem areas, but retaining technical involvement. These are excellent proving-grounds for line management ambitions.

Minimum experience required is at least 2 years varied programming, ideally in a mini or micro design environment, writing in CORAL 66, Assembler or PASCAL. Of particular relevance is the development of relational databases, operating systems, executives and compilers/utilities or sound knowledge of communication protocols.

Remuneration reflects the high calibre and professionalism of the men and women we wish to attract and salaries will be commensurate with your capabilities and experience, ranging between £8K and £16K. This will be backed by a generous benefits package including at least 24 days holiday, contributory pension scheme, and relocation assistance where appropriate.

Tel. 01-242 9356 (24 hour answering service)
OUR TELEPHONE ENQUIRY LINES ARE OPEN MON – FRI (9 AM – 6 PM) FOR FURTHER INFORMATION AND OCC APPLICATION FORMS. ALTERNATIVELY PLEASE WRITE QUOTING REFERENCE W294 – 6B WITH YOUR OWN CV, DETAILING COMPANIES YOU WOULD NOT WISH TO BE REFERRED TO.

Client interviews will be arranged within the next 3 weeks in a South of England office or provincially at a later date if preferred.

OCC computer personnel
16 Bedford Row, London WC1R 4EB

MRL

PROGRAMMERS

This long-established, independent company requires Programmers with a minimum of two years' experience to work on clients' premises in the SOUTH WEST.

Candidates for these permanent, pensionable appointments must have experience of CMC equipment plus, preferably, IBM and/or ICL.

We are also interested in hearing from very talented people who would like to work from our NORTH-WEST office where COBOL and/or PL/1 experience is of prime importance.

In addition to a competitive salary, bonuses can be earned and a company car is provided.

Unfortunately we do not have vacancies for trainees at either location.

If you are interested please write to Roger Carver, MRL, Lloyds Bank Chambers, Crown Glass Place, Nailsea, Avon BS19 2EW

or

John Royle, MRL, Langley House, Stanneylands Road, Wilmslow, Cheshire SK9 4HA.

or

Telephone John Royle on Wilmslow (0625) 532127

MRL

FIELD ENGINEERS OPPORTUNITY KNOCKS 82
CAREER ADVANCEMENT + ££££s

Don't allow your career to mark time this year, opportunity knocks this year if you know where to look.
Major Systems, Mini, Micro, Mainframe, Data Comms, Manufacturers, third party service.
Exciting applications – our client, market leaders with tremendous growth rates, can offer very high base salary, generous add-ons, quality car and substantial fringe benefits.
Also, perhaps more important in the long run, genuine training and career development with exposure to technical support, supervisory and management openings.
Immediate opportunities arise in London, Home Counties and other areas. Act now, ring us (ask for Clive) to discuss your future on:

A. B. EXECUTIVE (KINGSTON)
01-549 6441

£16,000
PER ANNUM + Held back in your career?

A change of direction can now offer you an exciting career opportunity with a major public company in the London area. If you have drive, a successful track record and sales ability, phone us now between 12.00-5.00pm:

S. Henderson, 01-493 7822

8349

CANADA

A major company in the petrochemical industry in Calgary is seeking experienced Programmers, Analysts and Computer Personnel of all levels.

Experience with IBM computors would be preferred but not essential.

Please send comprehensive résumé to Angela S. Gibbons.
RODERIC UNGER and PARTNERS LTD.
11 High Street
Barnet, Herts.

PL/1 Contracts

London, Home Counties, Leicester

Batch, or CICS, or DL/1

Programmers, Senior Programmers and Designers

Please Phone: Sheila Fox
Link Associates Limited
24a High Street, Chesham, Bucks.
(0494) 784922

link

COMPUTING SERVICES

Computer Applications Engineer

Mott, Hay and Anderson are International consulting engineers with a very wide practice in civil and associated mechanical and electrical engineering.

We require an Engineer with experience of structural analysis, including the finite element method, and of Fortran Programming. To join our Computing Services Group. The group provides a wide range of computing services for the company and to outside clients.

The successful candidate, although specialising in structural analysis, would work closely with other members of the group. The firm's computing facilities include a DEC VAX 11/780 computer, computer aided draughting and word processing systems.

There could also be opportunities to take part in a design team for major engineering projects, and for travel abroad.

Please reply in writing giving brief details, quoting reference MO.218 to:
Associate for Personnel, Mott, Hay and Anderson Holdings Ltd., 20/26 Wellesley Road, Croydon, CR9 2UL.

(8360)

Mott, Hay & Anderson
International Consulting Engineers

---

university college of swansea

Department of Computer Science
Lecturer

Applications are invited for a lectureship in the Department of Computer Science. The appointment is for a fixed term of three years. Applicants should have a first or good second class honours degree in computer science, mathematics or a closely related subject together with substantial research experience. The department has honours degree schemes in computer science and computing mathematics to which the new lecturer will be expected to contribute courses. His/her research interests may be in any area of computer science, software or hardware.
The appointment, which will be tenable from September 1, 1982, will be made in the lower half of the scale £6,070-£12,860 per annum, together with USS/USDPS benefits.
Further particulars and application forms (2 copies) may be obtained from the Personnel Office, University College of Swansea, Singleton Park, Swansea, SA2 8PP, to which office they should be returned by Friday, February 26, 1982.

ULSTER POLYTECHNIC
RESEARCH OFFICER OR RESEARCH ASSISTANT – COMPUTERS IN HEALTH INFORMATION SYSTEMS
(Appointment until 31 December 1983)

Salary Scale:
Research Officer £5652-£7137
Research Assistant £5064-£5526

A Research Officer is required to join a team funded by an EEC grant, investigating the application of database techniques in the field of health information systems.
Applicants should have an HND in computing. Applicants for a post at Research Officer level should have previous professional computing or research experience in order to pursue the project with a minimum of supervision.
The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and has a student population of some 7850. It has extensive new purpose-built accommodation, including 830 residential places on the 114-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal.
Further particulars and application forms which must be returned by 22 February 1982 may be obtained by telephoning Whiteabbey (0231) 65131 Ext 2243 or by writing to:
The Establishment Officer, Ulster Polytechnic, Shore Road, Newtownabbey, Co Antrim BT37 0QB.

8348

IBM SYSTEM 38

NEW YORK	**min. $1100 p.w.**
LONDON	**min. $400 p.w.**

MIN. 6-MONTH CONTRACT

Our Client is a leading multinational financial organisation with a major commitment to IBM SYSTEM 38 development in London and New York. To assist in their expansion they have a requirement for a minimum of six Analyst/Programmers to join them over the next four months.

If you have:

★ THREE YEARS' D.P. EXPERIENCE INCLUDING
★ SIX MONTHS' RPG III SYSTEM 38 OR
★ TWO YEARS' IBM GSD

Contact Apex quoting reference MH/05 for further details.

To apply in the first instance telephone:

SEAN ORSLER ON
01-404 4821

(8392)

Apex
Apex Computer Recruitment Ltd
59 Grays Inn Road, London WC1.
01-404 4821 24 hours.

Database Designer/Administrator
Data Analyst/Administrator
Salary to £11,000

Already established as a World Leader — Our Client, based in South Hertfordshire is at the centre of communications technology, producing the largest computer based project in the UK.

Using a network centred on a large Honeywell multi-processor computer, they require an experienced Database Designer to join a team designing and implementing databases (each supporting the information requirements of multi data processing systems) and guiding both project personnel and end users.

You will have a strong business orientation as well as technical expertise, the ability to communicate with, co-ordinate and influence people of different disciplines whilst exercising enthusiasm and flexibility.

Ideally you will have a Degree in a numerate discipline, high proficiency in COBOL or FORTRAN, (a working knowledge of PL1, SCREENWRITE would be advantageous), a proven track record of designing and implementing CODASYL and or RELATIONAL DATABASES or similar experience with any other major DBMS package.

The remuneration and working conditions offered are excellent. Salary is to £11,000 based on individual ability. In-house training facilities, pension scheme, medical facilities, subsidised restaurant, sports and social club, and excellent re-location assistance where applicable. This is a rewarding career with an expanding and highly successful company.

Write or telephone Mike Winsley,
COMAC
COMPUTER APPOINTMENTS & CONTRACTS,
27 Town Centre, Hatfield, Herts.
Telephone Hatfield (07072) 65699 or 69889.
(24 hour answering service)

(8383)

Comac

System 34 ●RPG 11 ●Display writer

Senior Programmer/ Analyst

c.£11,000 plus CAR plus BENEFITS

1 The ideal applicant will be in age group 25-35 and be an experienced, creative programmer with a proven track record. The person appointed will take full responsibility for our installation and will report to the Managing Director.

2 Our company is currently utilising an IBM System 34 – RPG11 – with 6 VDU's. The sales force carry Telxcon input terminals which are linked to our system via GPO telephone lines. An IBM Display Writer will be delivered in July – to augment and expand our activities.

3 The offer is attractive: the opportunity is to become an important part of a dynamic and professional company which encourages and rewards hard work and initiative. Salary range £10,000-£11,000 p.a. – company car – petrol allowance – superannuation and private health plan.
The total package is worth £13k.

4. The name of our company is KAVO – we're part of an international organisation which is a leader in the field of manufacturing high quality dental equipment. Our premises in Amersham are modern and Buckinghamshire is an extremely pleasant area in which to work.
Interested? Phone Mrs. Pauline Guyver for an application form on Amersham 21521.

KaVo Dental Limited
Raans Road Amersham Bucks HP6 6JL

SWITZERLAND

English speaking project Telex Software Development

An International Telecommunications Company is seeking Software Programmers to develop new Software for PUBLIC DATA SWITCHES SYSTEMS. Candidates should be in their mid to late 20s, have a degree, plus a minimum of 2/3 years' Assembler experience in a telecommunications environment. Alternatively candidates with operating systems experience would be equally valid. Successful candidates may look forward to enhancing their career progression, gaining valuable experience in an international environment.

German-speaking Project Software Development

A major communications company require additional German-speaking Programmers to develop a new Software communications system. Candidates should possess the following expertise:

- German language
- Assembler
- Process Control Type Applications
- Real-Time Communications
- 2/3 years' experience
- Degree

Qualifying applicants may look forward to considerable career advancement, gaining vital expertise in an overseas environment.

DATAMATICS
RECRUITMENT SERVICES
01-399 9183
Datamatics, Freepost, Surbiton, Surrey KT6 5BR

(8410)

DALROTH *computer personnel*

We have permanent vacancies on our files which cover a very wide spectrum of computer activity in a variety of industries both professional and commercial. The vacancies shown below indicate a small but important cross section of positions available in the South of England. We would be pleased to discuss these and our other requirements even if you may feel your background does not exactly fit these positions.

SENIOR PROGRAMMER **London** **£10,000**
A company which is an important member of the insurance world based in the City of London is looking for a three-year experienced DOS COBOL Programmer to assist in developing an important policy renewal system. The post will involve using CICS and DL/1 in the development and will also require the successful applicant to assist with the career progression of two junior programmers. Together with the guideline salary shown above, generous company benefits are offered including free medical cover, life assurance, pension schemes, etc. *Ref: PDG 1*

ANALYST/DESIGNER **London** **£10,500**
This is a very exciting position for an Analyst who has had design experience. A brand-new comprehensive project reporting system has to be designed and implemented into a very large commercial company. It may involve some local London travel initially, and possibly later abroad. The system will involve an IBM database so that successful applicants should have design experience on a database as well as qualities of leadership in dealing with a DP department of 30 people. Promotion prospects are excellent. *Ref: PDG 2*

PROGRAMMERS **N. Home Counties** **£10,000**
A very large service company has a desperate need for ICL COBOL Programmers to develop an on-line comprehensive stock control system. Programmers who have, or would like to gain, experience of IDMS under VME/B should have a minimum of three years' large ICL 2900 COBOL experience. The company's fringe benefits are excellent. *Ref: PDG 3*

PROGRAMMER **London** **£8,000-£10,000**
A PL/1 Programmer is needed to help in a major development of a Central London service company involved in the acquisition, generation and distribution of essential company statistical information. These are all real time applications based on an IBM 303X MVS configuration and therefore requires the brightest people with PL/1. *Ref: PDG 4*

PROGRAMMERS **S. Home Counties** **£6,500-£9,500**
A major force in the British insurance community has just embarked on a massive three year development program. This involves the use of the very latest range of computer techniques, because of the variety of policy types being covered by the company. Proficient COBOL Programmers with at least 12 months' experience on any hardware, will find salaries generous and perks really excellent. *Ref: PDG 5*

LEAD PROGRAMMER **South Coast** **£10,000**
A large friendly company involved in specialist international reinsurance needs a skilled IBM COBOL Programmer to head up a team of eight programmers who are at present developing a number of new systems using interactive programming aids on a large IBM machine under OS. The right applicant will probably have three or four years' IBM experience and can expect excellent fringe benefits including immediate mortgage assistance. *Ref: PDG 6*

SOFTWARE DEVELOPMENT LEADER **Milton Keynes** **£8,000-£10,000**
A key position in a well established and rapidly growing Hardware/Software products company.
To design and develop microprocessor-based systems and general purpose packages.
DEC LSI/11 or Z80/8080 background with FORTRAN or PASCAL.
Good benefits. *Ref: IMW 1*

For further information during office hours: please ring 01-493 2947 quoting reference. Evenings and weekends, PDG references, contact Paul Godfrey on Penn (049481) 4684 – IMW reference, contact Ian Murray West on Milton Keynes (0908) 563415 Ref: 9892.

DALROTH & PARTNERS LTD ● 4 HALF MOON STREET ● LONDON W1

SYSTEMS PROGRAMMERS

LONDON/SOUTHERN HOME COUNTIES **£9,000-£14,500**
Presumably you do exist?
If you have any in-depth experience of one of the following, we have a number of well heeled clients eager to press a very good salary into your hand; DOS/VSE, OS VS VM, MVS, IMS, CICS, BTAM or VTAM. Trainee Systems Programmers with an application programming background would also be very welcome. CW6/1

DOS OPERATOR

EDGWARE **£7,000 INC.**
A major electrical supplier shortly upgrading to an IBM 4300 is anxious to engage a qualified DOS operator. They offer a very good shift system and early chances of promotion. CW 5/2 IRENE

OPERATORS & SENIOR OPERATORS

KINGSTON AREA **TO £9500 INC.**
Have you MVS/JES 2 experience? Good, then apply now to work at one of the most advanced installations in the country. Very professionally run and you get 5 days off after each shift. CW 5/3 IRENE

RPG III, RPG II PROGRAMMERS & ANALYST PROGRAMMERS

LONDON AND HOME COUNTIES **(GENUINE) to £11,000**
We have no less than 15 current RPG II vacancies in the London/Home Counties areas, so if you have two years' or more RPG II experience ring us for details of these positions and their locations. Hardware includes IBM sys. 34, 38, and 4341 and perks include relocation assistance, European travel and excellent mortgage assistance (for some) LOCATIONS COVER VICTORIA, UXBRIDGE, N. LONDON, CITY, HORSHAM, COLCHESTER, etc. CW 5/4 MICHAEL

PROCESS CONTROL ENGINEER/PROGRAMMERS

C. LONDON & HERTS **£8,000 TO £12,000**
Do you have 3 months to 3 years process control experience and don't know where to go next? Well you do now. We have a number of very exciting assignments through reputable systems houses where your knowledge of real time systems in ALGOL, CORAL, PASCAL, FORTRAN, BASIC and the use of FERRANTI ARGUS, HON L 16, DG NOVA or INTEL 8080 will stand you in very good stead. Please ring for details now. CW 5/5 MICHAEL

SENIOR SUPPORT ANALYST

[illegible] LONDON **C.£11,000**
[illegible] experience using Mini Computers as well as mainframes, then this very profitable service company is anxious to see you. There is the opportunity to meet their customers and be involved in all aspects of feasibility studies as well as designing and working on brand new applications. CW 5/6 MICHAEL

SYSTEMS ANALYSTS/PROJECT LEADERS

LONDON & HOME COUNTIES **£8,000 to £13,000 P.A.**
[illegible] (OS & turnkey) professionals covering the complete range of machines and dealing with all levels of BANKING, FINANCE, MANUFACTURING & business applications. We have positions in MAIDENHEAD, ST. MARY CRAY, CITY, CROYDON, S.W. LONDON, HAYES, BEDFORD, BROMLEY, BASINGSTOKE, BRACKNELL, TUNBRIDGE WELLS etc. CW 5/7 MICHAEL

SALES EXECUTIVES

LONDON, HOME COUNTIES & MIDLANDS
TO £22,000 OE + CAR
[illegible] £13k to £20k bracket wishes to [illegible] an established senior [illegible] operating new business [illegible] managerial [illegible] CW 5/8 MICHAEL

CONTRACT PROGRAMMERS

[illegible] LONDON
[illegible] LONDON & NORTH
[illegible] NORTH
[illegible] COAST
[illegible] COAST

COMPUTING SERVICES
Fortran Programmer

Mott, Hay and Anderson are International Consulting Engineers with a very wide practice in civil and associated mechanical and electrical engineering.

We require a Fortran Programmer to join an established group responsible for the development of computer aided design methods and the operation of a DEC VAX 11/780 computer in Croydon and a VAX 11/750 in Hong Kong.

A minimum of two years' experience is required for this post for which the successful candidate will be required to display considerable initiative and drive.

Please reply in writing giving brief details, quoting reference No.218 to:

Associate for Personnel, Mott, Hay and Anderson Holdings Ltd., 20/26 Wellesley Road, Croydon, CR9 2UL. (5341)

Mott, Hay & Anderson
International Consulting Engineers

UNIVERSITY OF ZAMBIA

Applications are invited for the post of

SYSTEMS ANALYST IN THE COMPUTER CENTRE

Candidates must hold an M.Sc. in Computer Science or have a first degree and extensive experience in Systems Analysis and Design. The appointee will be responsible for carrying out feasibility studies and designing and implementing and maintaining computer-based systems. The University is currently replacing the 32K ICL 1906 computer system with a 96K ICL 2904 system with a Raid and exchangeable disc unit, three exchangeable disc units, two magnetic tape units, four direct data entry stations, a modular terminal processor with eight video display terminals, a card reader and a line printer. Salary scale: K8,972-7,908 p.a. (£1 sterling = K1.471). Two to four years contract. Mental overseas allowance, gratuity, family passages, baggage allowance. Detailed applications (two copies), including a curriculum vitae and naming three referees, should be sent to the University Secretary, University of Zambia, PO Box 31936, Lusaka, Zambia, to arrive no later than 1 March, 1982. Further particulars are available from the same address.

(8278)

DUBLIN

SYSTEMS ANALYSTS

CEMENT ROADSTONE HOLDINGS LTD, one of Ireland's leading industrial companies, requires additional staff to implement its development plans. The Computer Division supports the Groupe's Data Processing requirements both at home and overseas. The equipment installed is an IBM 4341 with transmission, operating under VM/DOS/VSE. On-line facilities using CICS are now being extended.

The appointed persons should:

(a) have a proven record of successful development and implementation of computer systems;

(b) be capable of working on his/her own initiative and communicating effectively at all levels of management.

Experience of on-line systems would be an advantage.

Salaries and conditions are competitive and are in line with what one would expect from a leading industrial company.

For further details please contact F. S. O'Sullivan, Computer Services Manager, or Eddie Howard in London.

[illegible]

DUBLIN

IBM MAINFRAME AND/OR SYSTEM 34

ZEUS HERMES IRELAND LTD. are a highly prestigious software consultancy. The company is involved with the development of sophisticated software products which are installed and marketed throughout the world. In continuing with this success we require additional personnel with IBM mainframe and/or System 34 expertise – two years plus in any of the following would be of great interest.

- ★ INTERACTIVE SYSTEMS
- ★ TELEPROCESSING CICS OR SHADOW
- ★ OS/DOS VSE/VM CMS
- ★ COBOL RPG 11 and other programming aids.

Candidates should be pleasing in manner, ambitious and prepared to travel from time to time.

Excellent opportunities exist for highly motivated individuals seeking greater responsibility, reward and long-term career prospects. An attractive salary and benefits package can be expected. For further details please contact: Mary Kinsella in Dublin or Eddie Howard in London.

ZEUS-HERMES IRELAND LTD JOSH

DUBLIN

SYSTEMS ANALYST

TECHNICAL SUPPORT PROGRAMMER

BECTON, DICKINSON & COMPANY is one of the largest manufacturing companies in the rapidly expanding health care industry. We are situated approximately eight miles south of Dublin City. The company's DP activities are IBM 4341 based, utilising VM/CMS, DOS/VSE, SNA, CICS, VTAM, COBOL, RAMIS and TOTAL.

The Systems Analyst will play a major role in systems development and will be involved with users in designing and implementing a range of new systems.

Two years' working experience of on-line systems design, preferably on IBM equipment is required. Experience in manufacturing Cobol and database systems will be an advantage.

The Technical Support Programmer should have 2/3 years' IBM System Programming experience. The appointed person will play a key role, evaluating software products and ensuring the smooth running of technical support.

An attractive salary and fringe benefit package awaits the successful applicants and relocation assistance will be provided where applicable.

For further information please write in confidence to Brian Clarke, Personnel Manager or contact Eddie Howard in London.

BECTON DICKINSON

POTTERY ROAD, KILLO THE GRANGE, DUN LAOGHAIRE, CO DUBLIN (8369)

Edmund Howard & Partners
5 Brighton Road, Surbiton, Surrey, England. Tel:01-399 9183

IBM 4341 CAREER OPPORTUNITIES IN BOURNEMOUTH

Gresham Life and AMEV Life, both part of the worldwide Dutch owned AMEV Group of Companies, have recently integrated their administration at their Bournemouth Head Office. Following a detailed evaluation a 5 year plan has been agreed to develop systems on to a new IBM 4341 whilst maintaining 2 existing Hewlett Packard 3000s.

Consequently we are looking for experienced personnel to join our well-qualified and committed team within Computer Services Department.

We offer an attractive remuneration package which includes a highly competitive salary, mortgage subsidy, non-contributory pension scheme, free life assurance and permanent health insurance and relocation assistance, where appropriate.

If the opportunity to develop and advance your career, in this pleasant south coast resort appeals to you, please write in confidence with brief career details to:-

Gill Pulling, Personnel Officer,
Gresham Life & AMEV Life, 2-6 Prince of Wales Road, Westbourne, Bournemouth BH4 9HD.

SYSTEMS ANALYSTS

Minimum of 3 years experience as a Systems Analyst preferably in an Accounting or Insurance environment.

SYSTEMS PROGRAMMER

IBM Systems Programmer with experience of IBM 370/4300 VM/DOS/VSE/CICS/DLI, gained in a COBOL environment.

OPERATIONS SUPERVISOR

Senior Operator/Shift Leader with 6-8 years IBM 370/4300 VM and DOS experience.

GRESHAM LIFE

AMEV LIFE

Develop your career on the right Lines

Excellent London-based opportunities

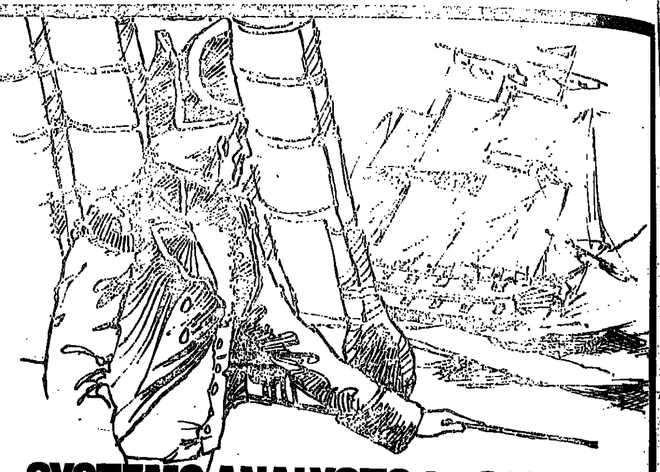
As a Systems Analyst with 3+ years' experience, you are now looking for that next career move and the chance to display your skill and knowledge in a front-line position. If you are able to think for yourself, show initiative, contribute effectively within a team environment and have the confidence to communicate at all levels, then our client could well be interested in you.

Your experience will ideally have been gained on medium to large systems. Whilst an IBM background is important, candidates with a thorough knowledge of IDMS on ICL will be of equal interest.

In-house training, where appropriate, will provide you with valuable education in IDMS Database, CICS and TELEPROCESSING techniques.

The Company is a firmly established world leader in advanced transportation technology with an impressive record of growth to date. To sustain an efficient worldwide business and its leading position, our client has undertaken a massive and continuing investment in hardware and systems.

The D.P. activities provide genuine career opportunities for several people capable of meeting the challenge that the new development projects will present. The Company is engaged on two significant Databased projects with multi-million pound manpower budgets for planned implementation over the next 3 years. To support these developments a 16Mb IBM compatible main frame has recently been installed.



SYSTEMS ANALYSTS to £10,500

Based in the City, our client's modern offices are well served by London Underground and British Rail. An attractive benefits package is provided and this includes assistance with relocation, if appropriate, interest-free season ticket loan, highly subsidised staff restaurant and a lively sports and social club.

To find out more about these challenging career openings, call Ray Parker on 01 491 4653 daytime or evenings.

Shuter Smith Associates
28, Berkeley Square, London, W1.
Call 01-491 4653

THE Comac CONTRACT

UK CONTRACTS £350 to £450

Systems People, Analyst Programmers, Programmers for contracts 3 months to 18 months

IBM CONTRACTS
IBM MVS PROGRAMMERS
IBM IMS COBOL/PLI PROGRAMMERS
IBM VM/CMS COBOL PROGRAMMERS
IBM IMS CICS COBOL PROGRAMMERS
IBM CICS DLI COBOL PROGRAMMERS
IBM SYSTEM 38 RPG III PROGRAMMERS
IBM ADF IMS PROGRAMMERS
IBM DOS/VSE COBOL PROGRAMMERS

TANDEM CONTRACTS
TANDEM T16 COBOL SCOBOL PROGRAMMERS

ICL CONTRACTS
ICL 2900 VME/B IDMS PROGRAMMER ANALYSTS

HEWLETT PACKARD CONTRACTS
HP 3000 PROGRAMMERS
HP 1000 FORTRAN PROGRAMMERS

DEC CONTRACTS
VAX VMS SYSTEMS PROGRAMMERS. VAX 11/780 COBOL PROGRAMMERS

USA CALIFORNIA to $35,000

IBM DLI/CICS COBOL PROGRAMMERS
IBM COS/VSE VM CMS COBOL PROGRAMMERS

SAUDI ARABIA CONTRACTS £550 to £750

Tax Free + Accommodation + Air Fares + Living Allowances + Visas

IBM PL/I IMS DB/DC TSO/SPF JCL ANALYST PROGRAMMERS & PROGRAMMERS
IBM MVS/JES2 TP SYSTEMS PROGRAMMERS — BUSINESS ANALYSTS
IBM OS/MVS BTS ADF BMP ON LINE DATA BASE DESIGN ANALYSTS
MKIV PROGRAMMER ANALYSTS

We have a reputation for moving quickly and efficiently so for an informal chat telephone us today or send your c.v. as soon as possible.

Comac Source
COMPUTER APPOINTMENTS & CONTRACTS
27 TOWN CENTRE, HATFIELD, HERTS.
Telephone Hatfield (07072) 65699 or 69889
24 HOUR ANSWER SERVICE

Targa

ANALYST/PROJECT LEADER

WEST LONDON — c£12,500

An international company with long-term growth commitments require an analyst/project leader to manage a team developing new systems.

Candidates with experience in an IBM DOS/VS or VSE environment would be preferable and working knowledge of total or environ-1 would also be an advantage.

If you are able to communicate at a senior level and have a history of successfully implementing major systems we would like to hear from you.

Ref: B.3770

PROGRAMMER

CITY — To £10,000

Our client is a professional company based in superb offices in the City. They seek a young, smart, preferably graduate level programmer to complement their small Data-processing team. Applicants should have experience with IBM CICS-COBOL (the level will be reflected in the salary) and they will be afforded the opportunity to work at Systems Design Level in a range of application areas. The installation of a sophisticated word-processing system should add further interest and involvement. The basic salary will be supplemented by a generous benefits package worth around £1,000 p.a.

Ref: H.3707

RPG

LONDON — £8,000-£13,000

Demand for Programmers and Analyst/Programmers with RPT II or RPG III experience still exceeds supply. We are in touch with many clients in industries including Banking, Distribution, Manufacturing and Software Houses offering a choice of a wide range of application areas. Make 1982 the year your career took off – call Targa for an early interview.

Ref. RGEN

SURREY, HANTS, BERKS

IBM — £7,000 to £10,000

We have many requirements for Cobol and PL/1 programmers. These installations are of a varied financial and commercial nature mostly using CICS and DL/1.

With at least two years' experience in Cobol or PL/1 many companies are willing to train good candidates in CICS or DL/1.

If you want to make a move for the future and require professional career guidance contact Targa for an immediate confidential discussion. Ref: BGEN

JUNIOR ANALYST

CITY — c£9,000+MORTGAGE

A major bank in the city has an opportunity within its expanding computer department for an analyst. The successful applicant will probably be working currently as a Cobol Analyst Programmer in an environment developing banking or financial systems.

A business background together with good oral and written communication skills could provide the opportunity for a full analysis role in a company offering plenty of development and a superb benefits package. Ref: R.3733

TARGA COMPUTER SERVICES
6 LIVERPOOL STREET, LONDON EC2M 7NH
10 Lines — 24-HOUR ANSAPHONE 01-283 9941

(8378)

SENIOR PROGRAMMER

HONEYWELL L64

MIDDX. c £9,000

Despite the recession, our Client, a household name, has enjoyed record results over the past two years. The data processing department has a vital role within this company and it has been decided to expand this by recruiting a Senior Programmer. The computer centre is situated in Middlesex and is easily accessible by road and public transport.

Applicants will ideally have a sound technical background to include around three years' COBOL programming within a Honeywell environment and should have a minimum of 6 months' systems exposure but more importantly should wish to push their analysis ability further. As well as the programming knowledge, candidates should also possess a good understanding of TDS on-line facilities and have a reasonable overview of telecomms.

In return our Client will offer an excellent starting salary and benefits package that includes a generous discount on company products. If you are aged 21-28 and wish to join a small but professional team that encourages rapid career progression contact Apex quoting reference CP 432.

(8292)

Apex Apex Computer Recruitment Ltd
59 Grays Inn Road, London WC1
01-404 4821 24 hours.

SENIOR OPERATORS

QATAR — ARABIAN GULF

QATAR GENERAL PETROLEUM CORPORATION, The National Oil Company has vacancies for Senior Operators in its Information and Computer Centre. The Centre runs a Dual IBM 4331 with large data communication network.

Candidates must have a minimum 4 years' IBM experience with thorough knowledge of DOS/VS, Power/VS, CICS and Associated Utilities.

Knowledge of DOS/VSE, ICCF and communication network would be advantageous.

Preference would be given to candidates with second language, Arabic or French.

WE OFFER: COMPETITIVE SALARIES AND EXCELLENT FRINGE BENEFITS
NO LOCAL INCOME TAX.

All applications will be dealt within strict confidence. Interested applicants are invited to submit copies of their curriculum vitae to:

MANAGER, PERSONNEL & TRAINING
Q.G.P.C. – P.O. BOX: 3212
DOHA, QATAR

(8307)

TOP RATES

DOS COBOL/CICS (FEB, MARCH, APRIL start)	
HP3000 COBOL	(NOW)
UNIVAC COBOL DMS/TIP	(APRIL)
PDP/VAX FORTRAN	(NOW)
UNIVAC 1100 FORTRAN	(NOW)
UNIVAC 1100 ASSEMBLER	(NOW)

MONTREAL ASSOCIATES SYSTEMS
01-953 2944 (4 lines) EMP Agy. (8412)

COMPUTER OPERATORS

with

BRITISH HOME STORES

LUTON

If you have experience on MVS systems, please hear about the grades of appointment and promotion prospects in our IBM equipped DP Centre. Three 12 hour shifts per week, to give maximum time off.

BHS 01-675-4019 JUST LISTEN YOU DO NOT NEED TO SPEAK.

Senior Shiftleader

c £6,700+benefits

Our Operations Centre performs a key role in providing a computing service for our expanding Insurance and Unit Trust services.

You will be responsible for the management of one of our three shift teams, who operate our large mainframe and mini computers, and will ensure that processing schedules are maintained. You will also liaise with our systems Software teams and, when necessary, deputise for the Chief Operator.

This key appointment requires a minimum of five years experience in Computer Operations, two of which must have been in a similar capacity or at Chief Operator level. The successful applicant is unlikely to be less than 25 years of age.

In return, we offer a superb range of benefits, which include:-

★ Generous shift allowance ★ Valuable mortgage subsidy ★ 23 days holiday ★ Free life and accident insurance ★ Profit sharing and annual bonus ★ Non contributory pension.

Telephone or write to Jan Vincent, Personnel Officer, TSB Trust Company Limited, P.O. Box 3, Keens House, Andover, Hants, SP10 1PG, Telephone Andover (0264) 62188 Extension 156.

TSB
TSB Trust Company Limited

UNIVERSITY OF NEWCASTLE UPON TYNE
DEPARTMENT OF ELECTRICAL AND ELECTRONIC ENGINEERING
RESEARCH ASSOCIATES

VLSI Design Methodology

Applications are invited for four temporary Research Associate posts for a major research project on VLSI Design Methodology funded by the SERC and jointly managed by the Electrical and Electronic Engineering Department and the Computing Laboratory. The grant includes the provision of a VAX 11/780 computer with advanced colour graphics terminals to work on second generation computer aided design tools for very complex integrated circuits.

The posts available include support for systems software and communications, circuit layout aids, simulation and verification of digital systems as well as data base and special purpose language research.

Candidates should have a good-uate qualification or equivalent in computer science or electrical engineering and have experience in the development of software using PASCAL or a similar high level language.

The posts are available for 48 months and two posts for 42 months. Starting salary will be up to £8,880 per annum on the Range 1A scale £5,670-£10,976 per annum, according to age qualifications and experience.

Applicants should send a curriculum vitae and the names and addresses of three referees to Professor D. J. Kinniment, Department of Electrical and Electronic Engineering, The Mara Laboratories, The University of Newcastle upon Tyne NE1 7RU, from whom further particulars can be obtained.

The closing date for receipt of applications is 15th February 1982.

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of those and future opportunities.

International

System 38 RPGIII or COBOL MARK IV	Programmer/Analysts	New York
	Consultants and Programmer/Analysts	New York
COBOL, ICL 2900 VME/B COBOL, NP 300 ADABAS	Programmer/Analyst	Luxembourg
	Analyst/Programmer Designer/Analyst/ Programmer	Middle East
FOCUS COBOL, CICS and/or DL/1	Programmers	New York Philadelphia
	Analyst and Programmers	New York

UK

PL/1 IMS/DB MARK IV	Programmer Programmer/Analysts	Essex London Home Counties
COBOL IMS/DB VM/CMS	Programmer Systems Programmer	Home Counties Home Counties
COBOL RPGII CICS PRIME FORTRAN or COBOL ADABAS	Analyst/Programmer	London
	Programmers Designer/Analyst/ Programmer	Home Counties London
COBOL UNIVAC 1100	Programmers	Essex

For more information please contact:
Resources Department
TANGENT COMPUTER SERVICES
102/108 South Street
Romford, Essex
Tel: Romford(0708) 750201
(24-hour answering service)

Tangent

8414

IBM — RPG AND COBOL SOFTWARE
NORTHEAST — NORTHWEST
EAST MIDLANDS, YORKSHIRE

Altergo Business Systems Limited has vacancies for Analyst/Programmers and MAAPICS Consultants to work on its expanding IBM System/23/34/38 business throughout the Midlands and North of England.

These are long term career positions which offer responsibility, good financial rewards and the opportunity to enhance your skills and experience. Applications cover the entire spectrum of financial, commercial, industrial and manufacturing activity.

We are particularly looking for people with enthusiasm, ambition, and above all, a professional outlook. We offer a dynamic organisation which recognises individual achievement. The rewards are a generous bonus scheme, six-monthly salary reviews and excellent fringe benefits. All our staff are expected to be flexible both in outlook and geographically.

MAAPICS CONSULTANTS — £9-12K

Applicants should have a manufacturing or Accounting background with practical experience in the implementation of MAAPICS. Candidates must be well versed in the systems requirements of modern manufacturing companies. Some knowledge of programming and operating the System/34 or/38 is desirable but not essential.

ANALYST/PROGRAMMER — £7-10K

Applicants should have at least four years' experience in RPG along with a relevant background knowledge of IBM minicomputers. Experience of System/34 and/or System/38 is essential. A working knowledge of COBOL or BASIC would be advantageous.

If you feel that your potential can be realised through the challenge of working within an innovative and stimulating environment with secure prospects and career development, please ring Ruth Berger on 061-707 4399.
Altergo Business Systems Limited,
Orbit House,
Albert Street,
Eccles,
Manchester,
M30 OWL. Tel: 061-707 4399

altergo

(8126)

Freelance Opportunities
Rates up to £450pw + Expenses
Register now for current contracts

Cobol ● PL/1 ● Mark IV

IMS DB ● IMS DB/DC
DL/1 ● CICS ● ADABAS

VME/B ● MTS ● TPS
● TP

Structured Programming

Contact: Virginia McGraa

BOMARC 01-402 0995

FREELANCE AND PERMANENT REAL TIME
LONDON AND HOME COUNTIES
WEST COUNTRY
PDP 11 VAX 11 MICROS

S-COM Computer Engineers Ltd, is an established Software and Systems engineering company specialising in Micro and Mini Computer Based Systems, for industrial and defence clients. Vacancies exist at Project Leader Consultant and Designer/Programmer levels for people who have attained some degree of specialisation in at least one area of True Real Time Activity.

We have been commissioned to undertake several projects in areas of Communications Process Control Radar and Graphics which require us to secure extra skills in...

★ RSX & VMS Systems and Applications Programming
★ Block structured and Assembler languages (Mini & Micro)
★ X-25 and Network Protocols

Remuneration within the following scales is on offer:

Permanent Staff	£9K-£14K p.a.
Freelances:	
Programmers/Designers	£370-£450 p.w.
Project Leader/Consultant	£470-£575 p.w.

In addition an attractive benefits package is available to both permanent and freelance staff.

Please write to or telephone: Chris Hawkins or Paul Roebuck
S-COM Computer Systems Engineers Ltd,
Market House
Aylesbury
Bucks. Tel: 0296-32023

S-COM
Formerly Sycom
COMPUTER SYSTEMS ENGINEERS LTD.

(8417)

ULSTER POLYTECHNIC
Faculty of Science

(a) LECTURER II/SENIOR LECTURER IN COMPUTER SCIENCE (DATA PROCESSING)
(b) LECTURER II/SENIOR LECTURER IN COMPUTER SCIENCE (DATA PROCESSING) (TWO YEAR APPOINTMENT)

Salary Scale: Senior Lecturer £9624-£11328/£12141
Lecturer II £6462-£10431

Applicants for these posts should have a Degree, preferably a good Honours Degree, in Computer Science or related discipline or a Professional Qualification in Computing. Teaching experience, or professional/industrial experience with an interest in teaching would be considered an advantage. Research and relevant consultancy will be encouraged.

Data Processing topics taught include systems analysis and design, management information systems, information retrieval, database systems, distributed computing, computer management and data processing applications.

The Polytechnic is a direct grant institution with an independent Board of Governors. It opened in 1971 and has a student population of some 7,950. It has extensive new purpose-built accommodation, including 830 residential places on the 114-acre campus overlooking the sea at Jordanstown, a pleasant and quiet residential area. There is a scheme of assistance with removal.

Further particulars and application forms, which must be returned by 15 February, 1982, may be obtained by telephoning Whiteabbey (0231) 66131, Ext 2243, or by writing to: The Establishment Officer, Ulster Polytechnic, Shore Road, Newtownabbey, Co Antrim BT37 0QB. (8250)

UNIVERSITY OF LONDON
MANAGEMENT SYSTEMS DIVISION

Increased System Development has brought about the need for additional staff.

Two Experienced Programmers

Are required to join the Management Systems Division which provides a University wide administrative computing service based on two ICL 2966 computers running under DME2 and George 2S. Applications are intrinsically commercial but are wider than in many DP Departments.

The vacancies will be filled initially on a two year fixed contract basis and ideally applicants will have 2-3 years' experience of ICL COBOL in a on line environment.

Salary according to age and experience, in ranges to £8,000 per annum. Further particulars and application forms available from Personnel Department, University of London, Senate House, Malet Street, London WC1E 7HU or telephone 01-636 8000 (Ext. 16). Closing date for applications is 19 February 1982. (8214)

PROGRAMMER/ ANALYST

£10-£10,500

GARLAINE LIMITED

Requires an experienced Programmer/Analyst to join their small DP Team based in the City.
Applicants must be able to offer:

★ 2 years' COBOL experience
★ Experience at EFFECTIVE SYSTEMS ANALYSIS
★ Ability to work in a fast-moving environment
★ Preferably "Interactive" Systems experience (ideally on NCR, IMOS/IRX systems)

The opportunity offers:

★ An attractive salary
★ Good working environment
★ The chance to work on the latest NCR 9000 series systems
★ The opportunity to give practical input to a growing DP user and control new Software development
★ CAREER DEVELOPMENT

Write giving details of experience to date along with full personal details to: Mr. Barry A. Glyan, GARLAINE LIMITED, 90-98 Goswell Road, London EC1V 7DQ. (8419)

ComputerWeekly
reaches more
Systems Analysts
than any other
computer publication
Ring 01-661 0121
for the facts
BREAK THROUGH TO THE COMPUTER PROFESSIONALS WITH
ComputerWeekly

OPPORTUNITY'82

Technicare urgently requires a further three Field Service Engineers with minimum HNC to join our established team in an attractive Gulf State to maintain a computer based telemetry system linking remote oil/gas gathering stations to a master monitoring unit.

Generous, tax-exempt, salary and excellent leave ratio.

Please telephone or write for an application form:

Norman Lingard
Technicare International Ltd.,
1 Northbrook Place, Northbrook Street,
Newbury, Berkshire, RG13 1BR.

Telephone: (0635) 32200

TECHNICARE

FOR CLASSIFIED ADVERTISING USE

DIRECT LINE 01-661 0121

SHAPE TECHNICAL CENTRE
The Hague, Netherlands

A NATO technical/scientific establishment has vacancies on its international staff for:

PROGRAMMERS

from DG.50,190 to DG.58,870 NET*

to participate in all phases of program development on various challenging projects including complex real-time systems (e.g. embedded computer systems, computer networks), scientific computation, data management and simulation. Development and target machines include a large CDC Cyber 740 and a variety of PDP-11 configurations. Personal professional development in Computer Science and Software Engineering will be encouraged.

QUALIFICATIONS:
Education to GCE A level or equivalent, with at least 3 years' relevant experience in the use of higher level language such as Pascal, SIMULA or FORTRAN. A knowledge of other modern software development tools and techniques would be advantageous. A good knowledge of English is also required.

*This is the annual salary for non-Dutch married officials without children.

Candidates who are nationals of one of the NATO countries are invited to send full details of training, experience and personal data to the Personnel Officer, SHAPE Technical Centre, PO Box 174, 2501 CD The Hague, Netherlands, quoting reference MC/1/82, not later than three weeks after the appearance of this advertisement. (8298)

The inside story for computer professionals

MEL, an established company in the development and manufacture of sophisticated professional electronic systems have an in-house IBM 4341 Model 1 using DOS/VSE with TOTAL as the database and ENVIRON/1 as the T.P. Monitor. We are breaking new ground with major development work and place great importance on utilising computer systems throughout all areas of our operations. One important activity is currently MANUFACTURING RESOURCE PLANNING.

The computer department is fully integrated into the business activity and the D.P. teams have direct involvement with the associated end users.

Vacancies exist for the following experienced professionals.

Chief Applications Programmer - £10 to £12k

To manage the programming group and provide a programming service for both new systems developments and maintenance/enhancement of existing systems.
Ref: D/CAP/1

Senior Systems Analyst - £9.5 to £12k

Responsible to the Projects Manager for the development, implementation and maintenance of information systems.
Ref: D/SSA/1

Systems Programmer -£8 to £10k

To implement and support all software on the IBM mainframe. Training will be given to a suitable programmer wishing to advance his or her career.
Ref: D/SP/1

Rewards and other benefits are excellent and include relocation assistance, if required, to this attractive part of the Sussex countryside.

If you require further technical details please telephone Mr. Ron Newton on Crawley (0293) 28787 extension 494. To obtain an Application Form please complete the attached coupon, quoting the appropriate reference number, and return to: Mrs. E. Lyndon, Personnel Officer, MEL, Manor Royal, Crawley, Sussex. RH10 2PZ.

MEL

Name _____

Address _____

Vacancy reference _____

MEL, Manor Royal, Crawley, Sussex. RH10 2PZ.

INFORMAL DISCUSSION

A 'phone call away from the technology of tomorrow

OPPORTUNITIES IN MEDICAL ELECTRONICS FOR

SOFTWARE ENGINEERS

WITH A WORLD LEADER IN MEDICAL SYSTEMS

At our Radlett facility we design and develop high technology medical diagnostic imaging equipment. Our Engineering department has world wide design authority for a range of products including nuclear medicine, computerised tomography and radio-therapy planning systems.

We have a well integrated and enthusiastic team of physicists, software, electronic and mechanical engineers working on the design and development of a number of projects.

System performance demands the use of the latest in mini and micro technology including distributed architecture, inter-processor communications, high speed data acquisition and processing.

Software development requires the use of high and low level languages, real time operating systems, multi-processor software systems, design and image processing techniques.

The positions offer opportunities for all levels of experience and career development and progression are excellent – as one would expect of a successful well diversified US Company.

Salary and benefit package, including private medical insurance, reflect the extreme importance of successfully filling these positions.

To discuss this exciting opportunity including salary range, working conditions and benefits call us on:

Radlett 4722 (Reversing charges)

On Tuesday 9th, Wednesday 10th, Thursday 11th February from 4.30 pm – 9.00 pm. or if this is not convenient please write to Malcolm Lakin, Personnel Department, IGENY Ltd Colney Street, St Albans, Herts.

This position is open to Male/Female candidates

INTERNATIONAL GENERAL ELECTRIC COMPANY OF NEW YORK LIMITED

GE USA

Royal Military College of Science, Shrivenham

Lecturer/Senior Lecturer Computing Science

The College is a residential establishment, running first degree and post-graduate CNAA courses, Army Staff courses and specialist courses, for both civilian and military students. It has an academic staff of over 100, whose duties are similar to those of University Lecturers. There are comprehensive laboratory, computing, workshop and library facilities, and staff are given every opportunity to become involved in research and development work, and extend their external contacts.

The Computing Science Branch is responsible for developing and researching into the application of computers to information systems, econometric modelling, operational research and financial modelling. DEC VAX-11/80, Perkin Elmer 3200 and PDP 11/55 machines are maintained and operated plus several microprocessors. Programming languages in use are CORAL 66, ADA, BCPL, ALGOL, FORTRAN and BASIC. The successful candidate will be expected to undertake teaching and project supervision in various aspects of computing science, including data bases, operating systems and programming languages, at undergraduate, graduate and specialist levels; prepare and supervise practical work in support of teaching, and systems software in support of research, on the College's main frame and mini-computers.

Candidates must have a first or second class honours degree or equivalent in computing science or a related discipline. Experience at the latest level, particularly with any of the machines or programming languages used by the College, will be advantageous.

Appointment will be as Senior Lecturer (£8205 – £10320) or Lecturer (£5175 – £6960) according to qualifications and experience. Starting salary may be above the minimum at each level. Promotion prospects to £13000 and above. Accommodation may be available for single staff.

For further details and an application form (to be returned by 26 February, 1982) write to Civil Service Commission, Alencon Link, Basingstoke, Hants RG21 1JB, or telephone Basingstoke (0256) 68551 (answering service operates outside office hours).

Please quote ref: S(D)908. (8276)

COISTE GAIRMOIDEACHAIS CHONTAE DHUN NA nGALL
COUNTY DONEGAL VOCATIONAL EDUCATION COMMITTEE
DONOGH O'MALLEY REGIONAL TECHNICAL COLLEGE
LETTERKENNY, CO. DONEGAL, IRELAND

LECTURER I IN COMPUTING

Salary Scale: IR£9,878 to IR£13,923 (under review)

The above Committee invites applications from suitably qualified candidates for the above post which may arise in the Regional Technical College, Letterkenny.

Qualifications are in accordance with the regulations of the Department of Education. Experience of the applications of computers to business systems will be an advantage. The College has two computers; PDP 11/34 and a PDP 8A, and a number of micro computers. The candidate appointed will be lecturing to students studying for the National Certificate in Computing – a two-year course certified by the National Council for Educational Awards.

Computing studies is an expanding area within the College and the successful candidate would be involved in the planning of future developments.

Application forms with full particulars are available from the Principal of the College, Port Road, Letterkenny, Co. Donegal, Ireland, (Tel. 074-21111) with whom completed forms must be lodged *not later than Friday, 19th February, 1982.*

Seán O'Loingsín
Chief Executive Officer

Vocational Education Committee Offices,
2 Port Road,
Letterkenny. (8331)

Lecturer

New Technology Systems — **Sussex**

Rediffusion Computers Limited is the world's leading supplier of Private Videotex and Advanced Office Systems. Company expansion has created the need for a further two Software Lecturers for our Education Centre.

Applicants should have a minimum of 3 years programming and systems experience, preferably in an on-line environment. Experience in one of the following would be an added advantage:

- Office Systems
- Word Processors
- Lecturing
- Viewdata
- On-line Systems Design

If you would like a new challenge then we feel we can offer the career stimulus and reward you would find difficult to match anywhere.

Relocation assistance will be provided if required.

Please write with full C.V. to Rob Wilson, Personnel Officer, Rediffusion Computers Limited, Kelvin Way, Crawley, Sussex RH10 2LY. Or telephone Crawley (0293) 31211 ext. 278.

REDIFFUSION Computers

A Member of the Rediffusion Group of Companies

8343

Design Engineers

(Software)

Vickers Shipbuilding and Engineering Limited is situated on the fringe of the beautiful Lake District. It offers superb working conditions, in surroundings which are ripe for virtually every type of leisure activity, and the opportunity to develop a career in a hard-working, though thoroughly refreshing environment.

Software engineers or programmers with real time experience in Pascal or other high level scientific languages are required for the development and production of software for a DEC VAX11/780 mini computer. This will be used for real time simulation stimulation and performance recording and analysis of various weapon equipments in the shore development facility of a new submarine weapon system project. Applicants should have a qualification in computer studies, electronic engineering, mathematics or other associated subject and have a minimum of two years programming experience. The company offers an attractive relocation package, where appropriate, to Cumbria, with excellent salary and staff development, and the prospect of long-term future contracts.

Please write with full details of age, qualifications and experience to:

**The Manager, Industrial Relations,
Vickers Shipbuilding and Engineering Limited,
Barrow Shipbuilding Works, P.O. Box 8,
BARROW-IN-FURNESS, Cumbria LA14 1AB.**

Applications are invited from either sex.

Vickers Shipbuilding and Engineering Limited

A member company of British Shipbuilders

REGIONAL COMPUTER UNIT

COMPUTER OPERATORS

HCO Grade £4,230-£5,119 P.A. (+ 20% Shift Allowance)

We are looking for operators for our regional computer unit which is a large and expanding installation operating a wide range of equipment, including an ICL 1904S mainframe and a number of interactive mini-computers. We currently have a full development programme involving the use of the very latest equipment and techniques. Ideally candidates should have a minimum of 4 O levels and at least three years' operating experience on either ICL 1900 (George 3) and/or DEC PDP 11/70. In return we can offer plenty of interest and scope for development.

For further details and an application form please contact (quoting Ref. No. V9/82):

The Recruitment Officer, Oxford Regional Health Authority, Old Road, Headington, Oxford OX3 7LF.

**Tel: Oxf. 64881 Ext. 243/367
Closing date: 19.2.1982.**

Oxford Regional Health Authority

(8418)

100,000

BREAK THROUGH TO THE COMPUTER PROFESSIONALS

with ComputerWeekly

Circulation breakthrough From last Jan. 1, we've had the first 100,000 circulation in computer journals.

Requested readership breakthrough ABC, Jan.-June, 1981, gave us the highest requested readership of any weekly UK computer journal.

Coverage breakthrough Computer Weekly now delivers more readers in EVERY major job category than any other weekly computer journal.

Cost-effectiveness breakthrough Whatever your target category, Computer Weekly recruitment advertising delivers the most readers at the lowest cost – and gives you a "bonus" audience, industry-wide!

Style breakthrough The new, re-styled Computer Weekly is a unique combination of newspaper readability and magazine depth – with a big programme of special recruitment features to help you.

Big breakthrough team Our recruitment advertising team is now enlarged to give you the fast service you need to break through to computer professionals everywhere. Contact them at:

LONDON Quadrant House, The Quadrant, Sutton, Surrey, SM2 5AS Tel. 01-661 0121
MANCHESTER Tel. 061-872 8861
BIRMINGHAM Tel. 021-356 4838

ComputerWeekly

100,324 ABC Jan.-June 1981

SMR
Sales & Marketing Recruiters Ltd
A Sales and Marketing Services Company

SALES EXECUTIVES
Last year our client introduced a new product every 10 working days – How about your company?

Our client is one of the world's largest computer manufacturers with a range of equipment extending from personal computers to large scale 32 bit systems. The company is committed to continual and considerable investment in product development: just one of the reasons why it is probably Europe's fastest growing minicomputer company.

Continuing expansion has created the need for additional sales executives within two sales divisions:-

Major Accounts and Information Systems

Responsibilities will include the company's full product range, selling to both existing clients and new accounts within geographical or nominated account territories based in

LONDON & HOME COUNTIES
MANCHESTER – LEEDS

We are seeking sales executives who are fully experienced in selling computer systems for a significant manufacturer as well as having a thorough understanding of business applications. Candidates who are currently successfully selling at a high level within large corporations and institutions, will be of particular interest.

- The company is committed to the continual development of new products.
- It has an exceptionally powerful networking capability.
- The product range includes comprehensive 'electronic office' facilities.
- Extremely powerful systems software and program development aids.
- Most of the company's sales management comes from its own salesforce.
- Minimum income guarantee negotiable around 50% of commission for first full year.
- There is no ceiling on earnings with 'on-quota' income of

OVER £18,000 + COMPANY CAR

Please supply complete career details to Alasdair Scott or Alan Williams quoting reference WSF/201.

LONDON & SOUTH
29 Oxford Street
London W1. (01) 734 9776

MIDLANDS & NORTH
39 Bore Street, Lichfield
Staffs. (05432) 56612

Answering Service after 6 pm and weekends
SALES TRAINING, MARKET RESEARCH, RECRUITMENT

COMPUTER RECRUITMENT SPECIALISTS

PROGRAMMER £9,000! Honeywell! L64/DPS 2! – GCOS!
Financial and marketing applications
ANALYST/PROG. £10,500! IBM 360/370! COBOL! Banking
Insurance systems!
PROGRAMMER £9,000! ICL 2900! VME 29 on line! Career minded! Mortgage benefits!
PROGRAMMER £9,000! COBOL! Various Applications!
Chance of travel! User Contact!
PROGRAMMER £10,000! System 34! RPG!! Gain
Additional varied system experience!
ANAL PROG. £10,500! DEC/PDP 11! Basic +! Car and bonus allowances!

IMMEDIATE CONTRACT VACANCIES

PROGRAMMER: Hewlett Packard/Assembler
PROGRAMMER: System 34! PRG !! Finance!

ANALYSTS AND PROGRAMMERS VACANCIES IN
BRISTOL, LEEDS, NOTTINGHAM, NORTHAMPTON, MANCHESTER, GLASGOW, DUBLIN

BUSINESS PEOPLE COMPUTER STAFF DIVISION, DUKE STREET HOUSE
415/417 OXFORD ST. LONDON W1
TEL: 01-629 9863
(8390)

SALES BIT

The dangers of doing business with a friend

BACK in 1979, I was introduced to some of the latest developments in telephone equipment that had been made possible by rapid advances in the micro-miniaturisation of electronic equipment.

This included cordless telephones, answering machines, telephone amplifiers and memory telephones. I was impressed and excited by what I saw and subsequently decided to set up a small company to market such products.

I have to say in retrospect that the venture was more euphoric than profitable and, when my main supplier went into liquidation, I decided to call it a day. There were alternative sources of supply and the business could have continued profitably, but there was much "writing on the wall" to suggest that I could be doing better things with my time and money.

I found that brief experience extremely interesting and several situations occurred from which I was able to learn valuable lessons, or at least be reminded of some selling realities.

There is a time-honoured axiom that suggests one should never do business with friends. I have to admit that, on more than one occasion, I have attempted to prove that integrity and common sense can protect the individual against the pitfalls implied in such gems of distilled wisdom, but have experienced more failures than successes.

Our marketing strategy was to limit the product range to one item within each category of telephone equipment. We were involved in a considerable amount of product evaluation and were eventually convinced that the chosen products had the best price/performance available at that time.

We sold quite a lot of machines, but the only real comfort to come from the entire experience is that we only had one client complain that his equipment was faulty. Indeed, our supplier often said that he had very few problems with reliability and such problems as he did have were almost entirely related to equipment with moving parts rather than solid state devices.

By this, he meant answering machines and explained that on the rare occasions problems did occur, they tended to be the same problem with the same batch of equipment.

I only once sold a piece of telephone equipment to a friend and, as students of Murphy's Law will already have guessed, he was the person who purchased the faulty equipment. Bad news!

As a friend, he expected special treatment – after all that was his primary motivation in buying from me. In fact, that is what he got, but it wasn't special enough as far as he was concerned, and things became a little heated.

It was at this time I began to appreciate the wisdom of that old axiom. It is bad to lose a customer but a catastrophe to lose a friend.

Fortunately, we sorted the matter out and, after the dust had settled, I tried to discover why the matter had got a little out of hand and why his reactions had been so extreme. It turned out that there were three main reasons: Expectation of special treatment, a transient personal problem which had put him under stress, and lack of faith in the product.

The first I have mentioned, the second was happily resolved, but the third came as a complete shock.

I eventually learned that on the day he had brought his machine to my supplier's workshops he had been involved in a conversation with the receptionist while waiting for the telephone engineer. He told her about his problem and she responded with what she apparently believed to be a conciliatory and sympathetic remark: "We often have that kind of problem."

The fact that the receptionist had only been with the company a couple of weeks and wouldn't know an answering machine if she fell over one was of little consequence. My friend, already burdened with the frustration of the problem machine, could not be expected to involve himself in an evaluation of the technical competence of the girl or the validity of her statement.

He simply saw it as a confirmation of a suspicion he had in the back of his mind. All the equipment was junk and he had been ripped off. In reality, the girl had been trying to help and she thought that her sympathetic statement would give the client confidence in the company's ability to understand and solve his problem, having experienced it before.

Certainly, the supplier had experienced problems of a similar type before but, relative to his total volume of equipment, they were negligible. The comment the girl had made was truthful but totally out of context.

An apparently trivial comment by a member of staff can easily lead to difficult or even disastrous circumstances. It is most important that secretaries, technicians, telephonists and so on, are made aware of the enormous importance of their role and the profound implications of ill-considered comments.

Alan Williams

PUZZLE ANSWER

ORDER-5 magic squares generally have their central number exactly one-fifth of the constant. This enables the 16 to be positioned with some confidence, and the remaining analysis is thus simplified. The sequence utilised is in fact 4 to 28, and the complete square is:

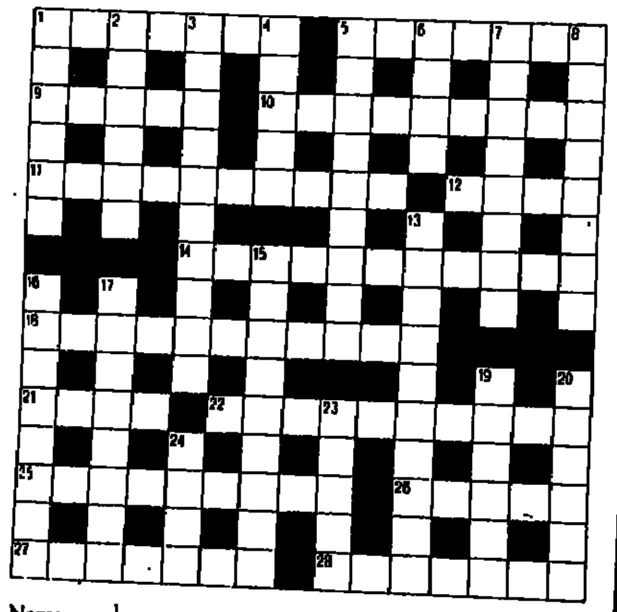
19	21	10	5	25
9	18	12	26	15
28	8	16	24	4
17	6	20	14	23
7	27	22	11	13

CROSSWORD

Prize Crossword No 25

Compiled by Alec Robins

A prize of £10 will be awarded for the first correct entry opened. The second and third solutions opened will receive £5 each. Entries to Crossword Competition, Computer Weekly, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS, by first post Friday, February 12. Please use a ballpoint to complete the crossword, and include a telephone number at which you can be reached during the daytime.



Name...(Miss, Mrs, Ms, Mr)

Address...

....

Telephone...

I accept the rules and conditions of the Computer Weekly Crossword Competition.

Signed.............................. Date..............................

ACROSS

1. Withholding of facts is at an end in the vessel (5-2)
5. With no backsliding, those protected by guardians will get ahead (7)
9. Money obtained by effrontery (5)
10. Don't stress importance of editor, taken in by foolish friend (4-5)
11. Eastern member receives censure in your communication by signals (10)
12. Formerly somebody about a hundred (4)
14. Recalling English MP in the arena (11)
18. Awaiting a reprimand? It's under discussion (2,3,6)
21. The girl had to cast off (4)
22. It can keep Scots on their toes and send a crowd wild (5-5)
25. Allowance of jet fighters for removal to another country? (9)
26. A long time going round the North to find a girl (5)
27. Provide new home for backward male – get excited about it (7)
28. Signs on, only half finishes, and heels over (7)

DOWN

1. Copper coins once used as measures (6)
2. Sailor, though in foul environment, having prospect of success (6)
3. Girl given information about a highway's fragrant spot (4-6)
4. Dough you can get in a street in Pennsylvania (5)
6,5. Terrible fate of Whip, MP 'e put into oblivion (4,3,3,3)
7. With rubbish about the study I'll get a collection of squirrels, mice, etc. (8)
8. Border of material, a decigram, fitted into ragged sleeve (8)
13. Ceremonially-dressed noble thrashed Lear shamefully (6,4)
15. Intend having leader of House caught by trick in the interval (9)
16. Very thin material sags more when loose (8)
17. Number on the nominal roll showing vigour (8)
19, 20. Quite sane, sees nine sons going mad (2,4,6)
23. A dusky queen, one born to follow a king (5)
24. Ban that upsets posh club (4)

RULES AND CONDITIONS

1. Each competitor may submit no more than one entry.
2. The competition is open to all readers of Computer Weekly with the exception of the staff of IPC Business Press Ltd, any printers employed by them or the near relatives of any such staff.
3. The solution of each puzzle will normally be published in the issue three weeks after the puzzle has been published.
4. Winners will receive their prizes during the month following the competition.
5. The decision of the editor on the interpretation of the rules and conditions and on all matters shall be final. No correspondence will be entered into.

CONTRACTS
RPGIII
SYSTEM 38 PROGRAMMERS

Immediate start
Please contact:
Jackie Robbins

(8403)

FORCE 8 computer services

8 Mint Walk Croydon 01 680 3761

ANALYSTS
LONDON
Circa £9,000 p.a.

Required for the Barclays Unicorn Group, a leading Unit Trust and Life Assurance Company with funds under management in excess of £500m.

Continued expansion and major plans for substantial investment in a new Life Administration System and the installation of a large ICL 2900 System have created further vacancies for Computer Professionals. Career prospects are excellent for these positions in an expanding department.

Applicants must demonstrate at least 4 years' relevant experience in a Cobol environment. Knowledge of ICL gained in a financial background would be advantageous. Successful applicants will work on the development of new mainframe and mini systems.

Competitive salaries, based upon experience, will be offered. There are many fringe benefits including a Bank Profit Sharing Scheme, Annual Bonus, a Non-Contributory Pension Scheme, Loan facilities and a Special House Purchase Scheme. Personal applications only, together with full career details, should be sent to:

**The Computer Services Manager,
Barclays Unicorn Group Ltd.,
Unicorn House, 252 Romford Road,
London E7 9JB.**

BARCLAYS

(8296)

Royal County of BERKSHIRE

COMPUTER LIAISON OFFICER

£8,190 with possible progression to £9993

The department is extending the use of Computer systems in a range of management information and client data applications. The work will have a strong development element and experience in Computer systems and/or Social Services administration is desirable.

Further information and application forms from Departmental Personnel Officer, Social Services Department, Shire Hall, Shinfield Park, Reading RG2 9XH. Tel: Reading 85444 ext. 4842. Closing date 19.2.82.

(8398)

COPICS EXPERIENCE?

WANTED by a young company for a team of COPICS specialists

- experienced programmers with an ability to solve COPICS implementation problems
- At least 2/3 years' experience with DL1/CICS in COPICS environment essential
- Higher academic qualifications preferred

TASK To help clients in U.K. and the Netherlands in the implementation/installation of COPICS.

This involves:
(1) Providing DL/1, CICS and COPICS expertise
(2) Developing and modifying DL1 data bases
(3) Programming and modifying on-line application functions.

Excellent salaries offered. Initial contract 6-9 months, with extension/permanent work possible. COPICS training facilities available.

Demanding work for enterprising, energetic persons.

If this interests you, please send relevant details to: Mr. Roy Hayhurst, Impact Software Services, 56 The Boulevard, Hollingworth, Cheshire. Tele: Office hours – 0457 63521; Evenings – 05645 5156.

(8406)

Borough Treasurer's Department

Help us design new IDMS Database Systems

Senior Programmer/Systems Analyst

Grade S.O. 1/2 £8,673-£10,011p.a. inclusive.
We need an experienced analyst to join our Systems and Programming Section to help investigate and design new systems in a 2900 VME/B environment using IDMS. You will be expected to talk to user departments about their needs and report to a Principal Systems Analyst leading a team of analysts and programmers. Proven analysis experience is essential. Benefits include 27 days' holiday, flexible working hours, subsidised restaurant, sports and social club on-site and free car parking. Application forms and further details from Controller of Personnel Services, Town Hall, Forest Road, London, E17 4JF. (Tel: 01-531 8899 – 24-hour answering service.)
Please quote Ref: B.4347.
Closing date: 19th February 1982.

AN EQUAL OPPORTUNITY EMPLOYER
Applicants are considered for their suitability for the post regardless of disability, sex, race and marital status.

Waltham Forest

SYSTEMS PROGRAMMER
SAUDI ARABIA

Saudi American Bank, an affiliate of Citibank N.A., is currently undergoing a large-scale expansion of its on-line real-time data processing facilities.

A Systems Programmer is required to maintain our operating system, the interactive terminal manager and our data base manager.

The systems programmer will also be responsible for configuration planning and has to address capacity issues.

Applicants must have a minimum experience of 2 to 3 years in the same field with Perkin-Elmer 32 bit computers or IBM mainframes.

The position is based in Riyadh but travel throughout the Kingdom of Saudi Arabia will be required.

The successful candidate will be offered:

- An attractive tax-free salary
- Free furnished accommodation
- One month's paid leave with paid air fare for all family members to UK or equivalent
- A car allowance

Plus other attractive fringe benefits.

The selected candidate will be offered a 3-year contract which will be renewable.

Applications with C.V. should be addressed to:
MR. J.C. VAN HAL, C/O SAUDI AMERICAN BANK
P. O. Box: 833, RIYADH, SAUDI ARABIA

البنك السعودي الامريكي
Saudi American Bank

Challenging Opportunities
with Blue Chip Company for CICS and VTAM specialists
Up to £15 000 + good fringe benefits

LA INTERNATIONAL have been retained by one of Britain's largest and leading computer Bureaux to select a Team Leader and Systems Programmers with CICS and VTAM experience to work with the latest in hardware and software facilities on a large range of exciting projects.

Our client provides a vast range of real time and RJP Services to well over 2 500 clients in most sectors of commerce and industry. The hardware installed includes two IBM 3033/3032 mainframes working with MVS and several other systems.

For both positions you will be working primarily to help and advise application teams on the best way to use a wide variety of software products, and you will require a good knowledge of CICS, preferably with VTAM. Priority will be given to candidates who can demonstrate working knowledge of other related software.

The Team Leader will be required to run a compact team of CICS specialists involved in several development projects.

The Systems Programmers should have experience in one or more of the following areas: –

MVS Total/DLI VSAM CMS

Therefore a salary of up to £15000 per annum plus fringe benefits which includes a house purchase scheme, relocation assistance, profit sharing, Christmas bonus and other benefits associated with working for a blue chip company.

Write with full C.V. or telephone for a Registration Form and more information: –

LA International

LA International Consultants Limited
Management and Computer Consultants

Lords House, High Street, Newcastle
Staffordshire, ST5 1PS England
Telephone 0782 633121

TRAIN IN USA!
Microprocessor Engineers
£12,000 + car

One of our top clients requires keen young engineers based in UK to be trained in their computer related products division. If you have software development/applications experience and seek variety – customer contact, problem solving and promotion then check these benefits:

Salary to £12K+ car. Training in USA will give proficiency in both Hardware and Software. Opportunities also for UK and European travel.

Ring Richard NOW! 01-549 6441 (Day)
01-644 3595 (after 7.30 pm)

AB Executive (Kingston) Limited

FOR CLASSIFIED ADVERTISING USE
DIRECT LINE
01-661 0121

SPECIALIST CONSULTANTS
- Communications
- Process Control

Salary to £16,000
with usual benefits

SOFTWARE ENGINEERS
- Industrial Systems

Salary to £13,000
with usual benefits

SYSTEMS DESIGNERS LIMITED

Systems Designers Limited is a British computer systems consultancy specialising in mini and micro based systems for the highly demanding Defence, Industrial and Business Management fields and also in research and development for advanced software technology. The company has grown to 250 professional staff whilst retaining its independence and individual management style. The current requirement is for staff to be based in our Fleet/Camberley offices or our North-West office in Altrincham.

We need SOFTWARE ENGINEERS experienced in:
mini-/micro- computer systems
industrial applications
block structured languages
assemblers

We need SPECIALIST CONSULTANTS in the instrumentation/process control area and the spectrum of computer/computer communications.

Current project involvement in the industrial sector includes: distributed micro-computer systems for process control, instrumentation, message switching, mini-computer networks, energy distribution and control, high speed data acquisition, simulators.

A number of opportunities exist in Europe and the USA both on short term specialist assignments and 1-2 year general assignments.

If you have a good academic background and relevant experience, we would like to hear from you. For an application form and brochure telephone Margaret Brown; ring Fleet (02514) 22161 or write to her at:

**Systems Designers Limited,
Systems House, 105 Fleet Road, Fleet,
Hampshire GU13 8NZ**

SOFTWARE PRODUCTS INTERNATIONAL

The Software Products Division of UCC, the multinational computing company has a worldwide turnover in excess of $50m and is dedicated to providing a range of tools, now industry standards, to improve data centre productivity. Following the appointment of a new European Vice President considerable expansion is planned for their U.K. operations creating a need for experienced IBM system software specialists.

U.K. SALES MANAGER
£25,000 +

We seek a U.K. Sales Manager, goal orientated, with a proven track record in IBM system software sales and the ability to build a successful sales and support team.
The successful applicant will enjoy considerable autonomy and a remuneration package of c£15,000 base, gtee, 2 litre car. Expected earnings: £25,000+.

SENIOR SALES EXECUTIVES
£20,000+

A rare growth opportunity to market the world's most exciting range of software; sophisticated, flexible and powerful, meeting a wide range of client needs and actually delivering what it promises.
The excellence of these packages has already given the company a dominant market position worldwide.
You are already successfully selling in competition but are sensitive to market changes and the need to further develop your career. An exceptional salary and benefit package plus 2 litre car is offered.

Telephone Mike Linford on 01-584 1766/1767 or send a brief C.V. for his attention to the address below. Any approach will be treated in the strictest confidence.

Michael Linford Associates Ltd.
Executive Search Consultants

45 Brompton Road, Knightsbridge, London SW3 6HR. Telephone 584 1766/1767.

(8166)